

# Guidance

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The purpose of this handbook is to:

- explain what Ofgem’s cap and floor regime for electricity interconnectors is and where to find the main regime policy information;
- provide up-to-date information on our implementation of, and changes to, the regime policy and design; and
- provide key information on Certification, Access Rules and Charging Methodologies that apply to electricity interconnectors.

We are publishing this handbook for your general information. It is a working document. Where sections may need updating periodically, we will try to do this in a timely manner. We encourage you to contact Ofgem if you consider that any of the information is not up to date.

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## Executive summary

Cap and floor interconnector project developers and other interested parties need to know what our cap and floor regime for electricity interconnectors is, and where to find up-to-date information on the regime.

We are publishing this handbook to make general information on the regime more accessible to stakeholders, bringing existing key information together into one publication, and to enable greater understanding of the regime. We have provided links to our main policy documents and an overview of other regulatory requirements such as Certification, Access Rules and Charging Methodologies that apply to all electricity interconnectors (not just those regulated through our cap and floor regime).

The handbook is set out in five sections:

- **Section 1: Cap and floor regime decisions** provides an overview of key policy decisions to date.
- **Section 2: Licence and related requirements** provides detail on cap and floor regime implementation through the licence and related legislative requirements.
- **Section 3: Cap and floor assessment framework** explains the assessments that we carry out before and around when the project starts operating. There are three assessments and their outcomes inform our final decision on the cap and floor levels that will apply to a project.
- **Section 4: Assessment during operation** explains the assessments that we carry out during the project's operation and throughout the regime duration. These assessments focus on determining how project revenues perform against the cap and floor levels and any corresponding payments from consumers to licensees<sup>1</sup> or from licensees to consumers. It also covers cost reassessment opportunities that are possible during this period.
- **Section 5: Cap and floor regime design** provides detail on key aspects of the regime design.

We encourage stakeholders to make use of the handbook as a consolidated source of information on the cap and floor regime, and to provide ongoing feedback to help us improve and update the handbook.

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<sup>1</sup> The terms licensee, developer and project are used interchangeably throughout this handbook.

## Introduction

### Section summary

This section of the handbook covers:

- context for Ofgem’s cap and floor regime for electricity interconnectors;
- overview of the main regime features;
- scope of the handbook; and
- overview of the five main sections of the handbook.

## Context

The cap and floor regime is the regulated route for electricity interconnector development in Great Britain (GB). It is a market-based approach which aims to incentivise developers to deliver interconnector capacity by limiting developers’ exposure to electricity market price risk. Ofgem rolled out the regime to new electricity interconnectors in August 2014 to incentivise the timely delivery of more interconnectors.

Before the regime was introduced, a limited number of electricity interconnectors had been built. Ofgem created the cap and floor regime to unlock beneficial investment by reducing risks. Interconnectors built before the roll out of the cap and floor regime were: IFA (2GW) to France, Moyle (0.5GW) to Northern Ireland, BritNed (1GW) to the Netherlands, and the East West interconnector (0.5GW) to the Republic of Ireland. These interconnectors were mostly developed as standalone projects on a merchant basis.

Then followed the Nemo Link interconnector (1GW) to Belgium<sup>2</sup> as the cap and floor regime pilot project. We have subsequently held two cap and floor application windows in 2014 and 2016 and have awarded a regime in principle to nine interconnectors totalling 10.9GW in cross-border capacity. If all of these projects go ahead, alongside existing interconnectors and approved projects under development on a merchant basis, GB interconnection capacity could increase to 15.9GW.

We have committed to reviewing our interconnector policy ahead of any further cap and floor application windows. This is to ensure that both further interconnection, and the regulatory framework for delivery, remain in consumers’ best interests.

Important context for the interconnector policy review is Government’s net-zero target for carbon emissions by 2050. In December 2020 the Department for Business, Energy,

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<sup>2</sup> Cap and Floor Regime for Regulated Electricity Interconnector Investment for application to project NEMO (2013): [Cap and Floor Regime for application to project NEMO: Impact Assessment | Ofgem](#)

& Industrial Strategy (BEIS) published its Energy White Paper<sup>3</sup> setting out how the UK will clean up its energy system to reach net-zero. In the Energy White Paper BEIS committed to working with Ofgem, developers and European partners to realise at least 18GW of interconnector capacity by 2030.

## Overview of the main cap and floor regime features

The regime sets a yearly maximum (cap) and minimum (floor) level for the revenues that the interconnector can earn over a 25-year period. Revenues generated by the interconnector are compared against the cap and floor levels every five years (in our default regime) or yearly (where we have approved regime changes). Top-up payments are made to the licensee if generated revenues are lower than the floor; and similarly the licensee pays back revenues in excess of the cap.

In our default regime, the cap and floor levels are set based on project costs using a typical Regulated Asset Base (RAB) model. We then apply different notional financial return parameters to set the cap and the floor independently. The floor is set to allow a developer with a notional financing structure to recover only their costs and a low rate of return equal to a cost of debt index.

Developers may request variations to the default regime design, provided they can demonstrate that these are in the interests of GB consumers. This is to reflect that certain aspects of the default regime may be less suitable for some types of financing solutions, and therefore it might limit the pool of capital developers can access.

The cap is designed to reflect the equity returns in assets with a similar risk profile. To determine returns at the cap, we apply the equity return rate, which is estimated using a Capital Asset Pricing Model (CAPM) approach, to 100% of the Regulatory Asset Value (RAV).

## Scope of the handbook

The scope of this handbook covers regime policy decisions underpinning the pilot project (Nemo Link), Window 1 and Window 2 projects.

- **1 pilot project:** Nemo Link
- **5 Window 1 projects:** North Sea Link (NSL) (to Norway), FAB Link (to France), IFA2 (to France), Viking Link (to Denmark) and Greenlink (to Ireland).
- **3 Window 2 projects:** GridLink (to France), NeuConnect (to Germany) and NorthConnect (to Norway).

This handbook does not cover regime policy decisions, or regime design aspects, for any potential future projects. If we decide to continue with the cap and floor regime in future, we may make changes to the policy design, the assessment framework or the regime design in due course.

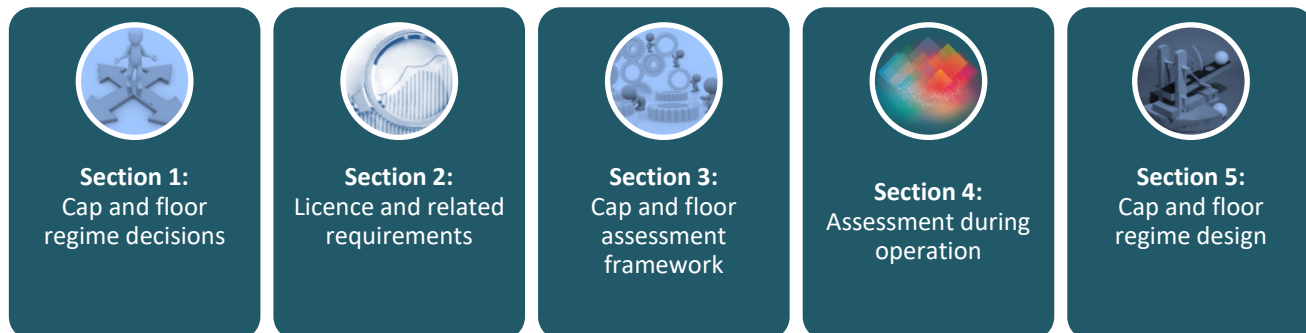
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<sup>3</sup> Energy white paper: Powering our net zero future:  
<https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future>

## Overview of the handbook

The figure below provides detail of the five main sections of the handbook.

**Figure 1: Regime overview**



**Section 1: Cap and floor regime decisions** is further divided into seven areas:

- Nemo Link (cap and floor pilot project)
- Window 1
- Window 2
- Regime policy updates clarifications
- Regime variations
- Engagement with other National Regulatory Authorities (NRAs)
- Interconnector policy review

**Section 2: Licence and related requirements** is further divided into five areas:

- Interconnector licence
- Certification
- Access Rules and Charging Methodologies
- Regulatory Instructions and Guidance (RIGs)
- Annual use of revenue submissions

**Section 3: Cap and floor assessment framework** is further divided into four areas:

- Initial Project Assessment (IPA)
- Regime variations application
- Final Project Assessment (FPA)
- Post Construction Review (PCR)

**Section 4: Assessment during operation** is further divided into four areas:

- Assessing interconnector revenues against the cap and floor levels
- ICF Methodology development and maintenance
- Cap payment to consumers and floor payments to licensees
- Opex reassessment and decommissioning cost reassessment

**Section 5: Cap and floor regime design** is further divided into three areas:

- Cap and floor regime design
- Cap and Floor Financial Models (CFFM)
- Interest During Construction (IDC)



## Your feedback

We believe that consultation is at the heart of good policy development. We are keen to receive your comments about this handbook. We would also like to get your answers to these questions:

- Do you have any comments about the overall quality of this handbook?
- Do you have any comments about its tone and content?
- Was it easy to read and understand? Or could it have been better written?
- Any further comments?

Please send any general feedback comments to [cap.floor@ofgem.gov.uk](mailto:cap.floor@ofgem.gov.uk)

## Associated documents

The table below sets our key policy publications relating to the cap and floor regime. We have also highlighted (X) which section(s) of this handbook they relate to.

Publication <sup>4</sup>	Published	Section				
		1	2	3	4	5
<a href="#">Electricity Interconnector Policy</a>	January 2010	X				
<a href="#">Open Letter on next steps from Ofgem's consultation on electricity interconnector policy</a>	September 2010	X				
<a href="#">Cap and floor regime for regulation of project NEMO and future subsea interconnectors</a>	June 2011	X				
<a href="#">Preliminary conclusions on the regulatory regime for project NEMO and future subsea electricity interconnector investment</a>	December 2011	X				
<a href="#">Cap and Floor Regime for Regulated Electricity Interconnector Investment for application to project NEMO</a>	March 2013	X				
<a href="#">Offshore electricity transmission and interconnector policy: minded-to position on interest during construction (IDC)</a>	October 2013	X				X
<a href="#">Cap and Floor Regime for application to project NEMO: Impact Assessment</a>	December 2013	X				
<a href="#">The regulation of future electricity interconnection: Proposal to roll out a cap and floor regime to near-term projects</a>	May 2014	X		X		
<a href="#">Decision to roll out a cap and floor regime to near-term electricity interconnectors</a>	August 2014	X				X
<a href="#">Decision on cap and floor project eligibility</a>	October 2014	X				
<a href="#">Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo</a>	December 2014	X				
<a href="#">Initial Project Assessment for the NSN interconnector to Norway</a>	December 2014			X		

<sup>4</sup> The certification processes for Nemo Link Limited and IFA2 have been completed under the older framework. New certification processes will be subject to the framework explained in our March 2017 publication.

<a href="#">Integrated Transmission Planning and Regulation (ITPR) project: final conclusions</a>	March 2015	X				
<a href="#">Initial Project Assessment for the FAB Link, IFA2, Viking Link and Greenlink interconnectors</a>	March 2015			X		
<a href="#">Decision on the Initial Project Assessment of the NSN interconnector to Norway</a>	March 2015	X		X		
<a href="#">Open letter: Financing electricity interconnectors under the cap and floor regulatory regime</a>	May 2015	X				
<a href="#">Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors</a>	July 2015	X		X		
<a href="#">Cap and floor regime: Update on our Initial Project Assessment of the Greenlink interconnector</a>	August 2015			X		
<a href="#">Decision on the Initial Project Assessment of the Greenlink interconnector</a>	September 2015	X		X		
<a href="#">Decision to open a second cap and floor application window for electricity interconnectors in 2016</a>	November 2015	X		X		
<a href="#">Enabling a range of financing solutions under the cap and floor regime</a>	December 2015	X				
<a href="#">Cap and Floor Regulatory Instructions and Guidance</a>	February 2016	X	X			
<a href="#">Proposed changes to the standard conditions of the electricity interconnector licence, licences held by Nemo Link and NGIL and NGET's electricity transmission licence to implement the cap and floor regime and use of revenues compliance</a>	February 2016			X		
<a href="#">Cap and floor regime summary for the second window</a>	May 2016	X				
<a href="#">Consultation on Final Project Assessment of the NSL interconnector to Norway   Ofgem</a>	October 2016			X		
<a href="#">Decision on changes to the standard conditions of the electricity interconnector licence, the electricity interconnector licences held by Nemo Link and NGIL and the electricity transmission licence held by NGET</a>	November 2016	X	X			

<a href="#">An update on 'Window 1' interconnector projects</a>	June 2017	X		X		
<a href="#">Initial Project Assessment of the GridLink, NeuConnect and NorthConnect Interconnectors</a>	June 2017			X		
<a href="#">Decision on the Final Project Assessment of the NSL interconnector to Norway</a>	July 2017	X		X		
<a href="#">Open letter on procedural changes to our Final Project Assessment stage</a>	November 2017	X				
<a href="#">Decision on the Initial Project Assessment of the GridLink, NeuConnect and NorthConnect interconnectors</a>	January 2018	X		X		
<a href="#">Certification under the ownership unbundling requirements of the Third Package – Decision of the Gas and Electricity Markets Authority – Nemo Link Limited</a>	February 2018		X			
<a href="#">Decision on the calculation of Interest During Construction (IDC) and the IDC rate to apply during 2018/19 for offshore transmission and future cap and floor interconnectors</a>	July 2018	X				X
<a href="#">Final Project Assessment of the IFA2 interconnector to France</a>	July 2018	X		X		
<a href="#">Decision on changes to the electricity interconnector licence held by National Grid North Sea Link Limited</a>	July 2018	X	X		X	
<a href="#">Update on the Final Project Assessment stage for Window 1 interconnectors</a>	October 2018			X		
<a href="#">Decision on 2019-20 Interest During Construction (IDC) rates for offshore transmission projects and cap and floor interconnectors</a>	May 2019	X				X
<a href="#">Guidance: Applying for a gas or electricity licence</a>	June 2019		X			
<a href="#">Certification under the ownership unbundling requirements of the Third Package: Decision of the Gas and Electricity Markets Authority – National Grid North Sea Link Limited and National Grid IFA2 Limited</a>	June 2019		X			
<a href="#">Post Construction Review of the Nemo Link interconnector to Belgium</a>	September 2019	X	X	X	X	X

<a href="#">Consultation on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions</a>	October 2019					
<a href="#">Updated Cap and Floor Regulatory Instructions and Guidance</a>	December 2019	X	X			
<a href="#">Cap and Floor Financial Model 1 Handbook (CFFM1H - Notional Approach) Dual currency (£/€)</a>	December 2019					X
<a href="#">Cap and Floor Financial Model 2 Handbook (CFFM2H - Notional Approach) Dual currency (£/€)</a>	December 2019					X
<a href="#">Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions</a>	May 2020	X				
<a href="#">Decision on changes to the electricity interconnector licence held by National Grid IFA2 Limited (NGIFA2)</a>	June 2020	X	X		X	X
<a href="#">Open letter: Notification to interested stakeholders of our interconnector policy review</a>	August 2020	X		X		
<a href="#">Cap and Floor Financial Model 1 Handbook (CFFM1H - Notional Approach) Single currency (£)</a>	September 2020					X
<a href="#">Decision on the Final Project Assessment of the Viking Link interconnector to Denmark</a>	September 2020	X		X		
<a href="#">Decision on proposed modifications to the standard conditions of the electricity interconnector licence, the special conditions of the electricity interconnector licence held by NGIL and the electricity transmission licence held by NGESO</a>	October 2020	X	X			
<a href="#">Certification arrangements in Great Britain following amendments to the ownership unbundling provisions of the Gas Act 1986 and the Electricity Act 1989: End of the transition period</a>	March 2021		X			
<a href="#">Electricity Interconnectors Cost Assessment Guidance Document</a>	March 2021	X	X			
<a href="#">Consultation on the Final Project Assessment of the Greenlink interconnector to Ireland</a>	March 2021	X		X		

<a href="#">and decision on Greenlink's needs case review</a>						
<a href="#">Decision on changes to the electricity interconnector licence held by Greenlink Interconnector Limited (GIL) and the electricity interconnector licence held by NeuConnect Britain Limited (NBL)</a>	June 2021		X		X	
<a href="#">Cap and floor interconnectors: Decision on pre-operational force majeure arrangements</a>	June 2021	X	X			
<a href="#">Cap and Floor Financial Model 1 Handbook (CFFM1H - Actual Cost of Debt Approach) Single currency (£)</a>	June 2021					X
<a href="#">Interconnector policy review: Working paper for Workstream 1 – review of the cap and floor regime</a>	June 2021	X				
<a href="#">Interconnector policy review: Working paper for Workstream 2 – socio-economic modelling</a>	June 2021	X				
<a href="#">Interconnector policy review: Working paper for Workstream 3 - wider impacts of interconnection</a>	June 2021	X				
<a href="#">Interconnector policy review: Working paper for Workstream 4 - multiple purpose interconnectors</a>	June 2021	X				
<a href="#">NeuConnect Britain Limited – Decision on a request for a later regime start date for the NeuConnect interconnector project</a>	August 2021	X				

## Section 1: Cap and floor regime decisions

### Section summary

This section summarises our cap and floor regime decisions to date, and is grouped into seven areas:

- Nemo Link (cap and floor pilot project)
- Window 1
- Window 2
- Regime policy clarifications
- Regime variations
- Engagement with other NRAs
- Interconnector policy review

### 1.1. Nemo Link (cap and floor pilot project)

Nemo Link is the first interconnector project to be regulated under our cap and floor regime. It has a capacity of 1GW and connects Zeebrugge in Belgium to Richborough, Kent in Great Britain. The project developers are National Grid Nemo Link Ltd (a subsidiary of National Grid Plc) and Elia (the Belgian Transmission System Operator (TSO)). Together they jointly own and operate the interconnector. The cap and floor regime applies to the whole of Nemo Link, not just the GB side.

We granted the project [a cap and floor regime in December 2014](#) setting the final cap and floor levels for the Nemo Link project at £77.0m and £43.9m respectively (in 2013/14 prices). Further detail is set out in our December 2019 [Decision on the Post Construction Review of the Nemo Link interconnector to Belgium](#). The project started commercial operations in January 2019.

### 1.2. Window 1

The first cap and floor [application window](#) (Window 1) opened on 6 August 2014 and closed on 30 September 2014. Five projects applied for cap and floor regulation in Window 1. We granted a cap and floor regime in principle to these five projects. These projects are: [North Sea Link \(NSL\) \(to Norway\) in March 2015](#), [FAB Link \(to France\)](#), [IFA2 \(to France\)](#), [Viking Link \(to Denmark\) in July 2015](#) and [Greenlink \(to Ireland\) in September 2015](#).

Table 1 on the next page provides more detail on the five Window 1 projects.

**Table 1: Window 1 projects**

Project Name	Developers	Connecting country	Capacity (MW)	Expected Connection Date	Status
FAB Link	Transmission Investment and RTE	France	1400	2025	Under development
Greenlink	Partners Group	Ireland	500	2024	Under development
IFA2	NGIH and RTE	France	1000	2021	Operational
NSL	NGIH and Statnett	Norway	1400	2021	Under construction
Viking Link	NGIH and Energinet	Denmark	1400	2023	Under construction

### 1.3. Window 2

The second [application window](#) (Window 2) for projects opened on 31 March 2016 and closed on 31 October 2016. Three projects applied for cap and floor regulation in Window 2. We granted a cap and floor regime in principle to the three projects in the [Decision on the Initial Project Assessment of the GridLink, NeuConnect and NorthConnect interconnectors in January 2018](#). These projects are: GridLink (to France), NeuConnect (to Germany) and NorthConnect (to Norway).

Table 2 below provides more detail on the three Window 2 projects.

**Table 2: Window 2 projects**

Project Name	Developers	Connecting Country	Capacity (MW)	Expected Connection Date	Status
GridLink	iCON Infrastructure Partners III, L.P.	France	1400	Mid 2020s	Under development
NeuConnect	Allianz Capital Partners; Frontier Power; Greenage Power; Meridiam; Kansai Electric Power	Germany	1400	Mid 2020s	Under development
NorthConnect	Lyse, Agder Energi, Hafslund E-Co and Vattenfall	Norway	1400	Mid 2020s	Under development



## 1.4. Regime policy updates and clarifications

This section sets out an overview of the policy updates and clarifications to date, more details on each are set out in the relevant publications.

In December 2015, we published [our guidance](#) to interconnector developers who are considering requests for variations to the cap and floor regime related to financing. This guidance applies to projects we approved in our Window 1 and Window 2 application windows.

In February 2016, we published our [Cap and Floor Regulatory Instructions and Guidance](#) for interconnector owners operating under the regime to assist them in completing the regime reporting requirements.

In November 2016, we published our [Decision on changes to the standard conditions of the electricity interconnector licence, the electricity interconnector licences held by Nemo Link and NGIL and the electricity transmission licence held by NGET](#). These changes implemented Nemo Link's cap and floor regime and inserted provisions into the Electricity System Operator (ESO) licence to enable the transfer of money between the ESO and Nemo Link.

In June 2017, we published [Cap and floor regime: An update on 'Window 1' interconnector projects](#). This clarified several conditions we placed on interconnectors as part of our Initial Project Assessment (IPA) decisions. Our publication proposed the following which have now been implemented:

- Extension to the deadline for Final Project Assessment (FPA) submission. We allowed a 12-month extension to the deadline for FPA submission in cases where projects can demonstrate significant progress towards development;
- Relief for delays to regime start date caused by force majeure events or circumstances. We indicated that we would exclude the duration of any delays caused by force majeure events. This built on the licence conditions we had put in place for Nemo Link, as the pilot cap and floor project. We noted that we would expect Window 1 projects to benefit from similar licence terms in this regard (subject to our standard consultation procedures if we were to roll out this solution to Window 2 projects);
- Extension to the connection date requirement. We extended the deadline of project delays that we would deem material from the end of 2022 to the end of 2023; and
- Changes to project design where these may be in consumers' interests.

In November 2017, we published [Cap and floor regime: Open letter on procedural changes to our Final Project Assessment stage](#). Following an internal review of our processes, we proposed to publicly consult at the FPA stage only if there are significant changes from the information we published at the IPA stage (such as if project costs have materially increased, or we are minded to approve variations to the default regime design). We noted that in situations where there are no significant changes, our default approach will be to engage bilaterally with the relevant project developers during our FPA assessment, and then to publish our FPA decision without a public consultation. The

letter added more flexibility to our decision making process at the FPA stage and aimed to reduce administrative burden for developers and for wider stakeholders.

In July 2018, we published our [Decision on the calculation of Interest During Construction \(IDC\) and the IDC rate to apply during 2018/19 for offshore transmission and future cap and floor interconnectors](#). This decision followed our [Review of the methodology for the calculation of the Interest During Construction for offshore transmission and future interconnectors granted the cap and floor regime](#). We introduced a new methodology for setting IDC rates to apply for Window 2 projects. Our decision changed the timing of setting interconnector IDC from individual assessments at the date of Final Investment Decision (FID) for each project (which is the approach for Window 1 projects) to an annual update applicable to all projects reaching FID in that financial year (to apply to Window 2 projects). We noted that we expect the same treatment will apply to interconnectors considered under any future cap and floor regime application windows.

We discussed the specific circumstances of each Window 1 project in our October 2018 letter: [Timing of the Final Project Assessment \(FPA\) for 'Window 1' interconnector projects](#). In addition, we proposed not to place an additional fixed deadline on submissions. Rather, we expect an FPA submission to follow a reasonable period of time after each project's circumstances are clarified. If we are concerned that this is not the case, we will redo the IPA for each project.

In May 2019, we published our [Decision on 2019-20 Interest During Construction \(IDC\) rates for offshore transmission projects and cap and floor interconnectors](#). This decision updated our approach to estimating Total Market Return (TMR) – an input to the IDC calculation. Given the complexity of the estimation of TMR and the significant work undertaken for our RIIO-2 regulatory regime, we concluded that it is appropriate to align our approach to TMR with the RIIO-2 regime.

In December 2019, we published our [Cap and Floor Regulatory Instructions and Guidance \(RIGs\)](#). This was a comprehensive update on the previous version of the document, which we published in [February 2016](#). The update enables Ofgem to collect data from cap and floor interconnectors in a more consistent format.

In October 2020, we published our [Decision on proposed modifications to the standard conditions of the electricity interconnector licence, the special conditions of the electricity interconnector licence held by NGIL and the electricity transmission licence held by NGEN](#). These implemented changes to relevant licences in order to reflect the Clean Energy Package (CEP) Electricity Regulation and implement our decision on our approach to cost sharing and cost recovery under the Capacity Allocation and Congestion Management (CACM) Regulation.

In March 2021, we published our [Electricity Interconnectors Cost Assessment Guidance](#). This document explained the process that we follow whilst undertaking the cost assessments of interconnectors and provides guidance to developers on how to prepare cost submissions for our review.

In June 2021, we published our [Cap and floor interconnectors: Decision on pre-operational force majeure arrangements](#). The decision sets out our approach to providing a means for interconnectors that have encountered delays, caused by force majeure

events, during the pre-operational period to request a later regime start date for the Authority’s consideration.

## 1.5. Regime variations

As part of the regime policy, developers may request regime variations provided they can demonstrate that any proposed variations are in the interests of consumers. This is to enable developers to attract the required private financing for their projects to continue through construction and operation.

We expect requests from developers to align with our regime regulatory timelines. This means that developers should request regime variations in time to allow for our decision ahead of the FPA stage for their projects.

Following our October 2019 [Consultation on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#), in May 2020, we published our [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#). This decision changed aspects of our default regime for the Greenlink and NeuConnect interconnectors to enable project finance solutions. Our decision applies to these two projects only, except where we have noted otherwise, as set out in our decision. Project developers may wish to apply for the same set of variations or consider a different package of variations that work best in their own circumstances and improves consumer outcome.

### **Overview of our regime variations decision**

**Table 3: Variations approved for NeuConnect and Greenlink projects**

Variation	Decision
Reduce the default five-year revenue assessment period to one year.	Approved
Consider changes to the principle underpinning our minimum availability threshold of 80%.	Approved
Broaden our definition of force majeure under the default regime to include additional events.	Approved
Use project-specific actual cost of debt and gearing to calculate IDC and to set the revenue floor level, rather than the default notional cost of debt and gearing.	Approved

More information on regime variations applications and how we assess them is set out in Section 3.

## 1.6. Engagement with other National Regulatory Authorities (NRAs)

We expect developers to engage with respective NRAs for their project throughout the regime, and this is particularly important during the development stage. We encourage developers to engage with relevant NRAs to ensure that a relevant regulatory framework is in place in the connecting country for the project to be delivered in line with the

timelines developers have suggested to us. We expect developers to reach an agreement with the relevant NRA in the connecting country on the regulatory treatment for the non-GB portion of its interconnector by the FPA submission date, which is a condition placed on developers at the IPA stage.

We are aware that other NRAs may have different regulatory and assessment frameworks, and that elements of these may not necessarily be directly compatible with elements of our cap and floor regime. We are similarly aware that the processes and timelines for regulatory approval differ across connecting countries and may not neatly align with the structure of our cap and floor regime. Through our existing relationships and ongoing collaboration with other NRAs, we have noted positive feedback on the cap and floor regime and have worked with our European colleagues to resolve differences in regulatory approach where required.

We will continue to engage with our counterparts wherever possible to help understand approaches to approval and regulation, and to discuss our cooperation on new cross-border projects. However, it is not our role to influence regulatory approaches or decision making outside of our jurisdiction.

## 1.7. Interconnector policy review

In August 2020, we launched a review of our policy and approach to new electricity interconnectors. The objectives of the review are two-fold: firstly, to establish whether there is a need for further interconnection capacity beyond those projects currently with regulatory approval (pilot project, Window 1 and Window 2); and secondly to consider our approach to the regulation of future interconnection. The review covers the following four workstreams:

- Workstream 1 – Review of the cap and floor regime to date
- Workstream 2 – Socio-economic modelling
- Workstream 3 – Review of the wider impacts of interconnection
- Workstream 4 – Multiple Purpose Interconnectors (MPIs)

**Workstream 1** - [Interconnector policy review: Working paper for Workstream 1 – review of the cap and floor regime](#): reviews the regime to date, looking back at whether the objectives of the regime have been met, as well as considering whether there are changes or alternatives which might help us deliver those objectives more efficiently.

**Workstream 2** - [Interconnector policy review: Working paper for Workstream 2 – socio-economic modelling](#): undertakes modelling to determine whether interconnectors beyond our Window 2 projects is likely in the interests of GB and GB consumers.

**Workstream 3** - [Interconnector policy review: Working paper for Workstream 3 - wider impacts of interconnection](#): reviews the way in which we assess a project's needs to establish if a change is necessary to better reflect the full range of potential current and future impacts, particularly in the context of the UK's net zero commitment.

**Workstream 4** - [Interconnector policy review: Working paper for Workstream 4 - multiple purpose interconnectors](#): reviews whether the final conclusions of our Integrated Transmission Planning and Regulation (ITPR) project on MPIs remain fit for purpose. It also considers options for the regulation of MPIs and how this might interact with our cap and floor regime.

## Section 2: Licence and related requirements

### Section summary

This section covers licence and related requirements which is grouped into five areas:

- Interconnector licence
- Certification
- Access Rules and Charging Methodologies
- Regulatory Instructions and Guidance (RIGs)
- Annual use of revenue submissions

### 2.1 Interconnector licence

Under the Electricity Act 1989 (as amended) certain activities may only be carried out with a licence (or under a relevant exemption or exception).

One of our responsibilities at Ofgem is to develop the content of gas and electricity licences, and to grant licences to successful applicants.

An electricity interconnector licence allows the licensee to participate in the operation of an electricity interconnector. This is defined as:

- coordinating and directing the flow of electricity into or through an electricity interconnector; or
- making such an interconnector available for use for the conveyance of electricity.

Documents related to interconnector licence are set out below.

#### ***Applying for electricity interconnector licence***

We assess applications for licences in accordance with our licence application guidance published on 18 June 2019. The document can be found on our website at [Guidance Document for Applying for a Gas or Electricity Licence](#).

Our Licences, industry codes and standards webpage has more information on our licence process: [Industry codes and standards - Standards](#) and [Licences and licence conditions](#).

Licences contain conditions that licence holders must comply with, including conditions in relation to becoming a party to, and complying with, industry codes and standards. The industry codes establish rules that govern market operation and the terms for connection and access to energy networks.

The Electricity Interconnector Licence broadly comprises two parts. One part sets out the Standard Licence Conditions (SLCs) which apply to all electricity interconnector licensees. The other part, Special Conditions (SCs), set out specific obligations that apply to each electricity interconnector licensee, including with respect to our cap and floor regime.

**Figure 2: Licence Conditions**

Standard Licence Conditions	Special Licence Conditions
<ul style="list-style-type: none"> <li>✓ Cover duties and obligations applicable to all electricity interconnector licensees</li> <li>✓ Published on our website under "Electricity interconnector licence: standard conditions"</li> <li>✓ Issued indefinitely (unless revoked)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Cover extra obligations and incentives on cap and floor licensees</li> <li>✓ Published on our website under "Special conditions for the electricity interconnector licence held by ...."</li> <li>✓ Issued for a fixed term</li> </ul>

For the avoidance of doubt, the grant of an electricity interconnector licence does not mean the holder of that licence is also granted the cap and floor regime. Both the licence grant and regime grant are assessed and governed under two separate processes.

**Standard Licence Conditions**

The SLCs apply to all electricity interconnector licensees. They place rules on how holders can operate within their licence. The consolidated versions of our current SLCs are available on our website at: [Electricity Interconnector Standard Licence Conditions 08 04 2021](#).

**Special Licence Conditions**

The SCs set out cap and floor regime obligations and incentives that apply for each licensee<sup>5</sup>. We have set out below three different implementations (not an exhaustive list) of the SCs:

- Where our default cap and floor regime is the applicable regulatory regime on both the GB side and the connecting country’s side (as in the case of the Nemo Link project), a dual currency (€/£) licence applies. The Nemo Link licence is available on our website at: [Special conditions of the electricity interconnector licence held by Nemo Link Limited](#).
- Where a split regulatory framework is the case (meaning our default cap and floor regime applies only to the GB side of the interconnector), a single currency (£) license applies. The IFA2 Limited licence is an example of this implementation and is available on our website at: [Special Conditions of the electricity interconnector licence held by National Grid IFA2 Limited](#).
- Where a split regulatory framework is the case (but a variation to our default cap and floor regime applies only to the GB side of the interconnector), a single currency (£)

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<sup>5</sup> The special conditions are not exclusive to cap and floor regime licensees. In certain circumstances, if appropriate, an interconnector licensee, that is not regulated under the cap and floor regime, may also have special conditions inserted in its licence (following our standard licence modification process that is subject to public consultation).

licence applies. The Greenlink Interconnector Limited licence and the NeuConnect Britain Limited licence are examples of this implementation. This version of the licence is available on our website at: [Decision on changes to the electricity interconnector licence held by Greenlink Interconnector Limited \(GIL\) and the electricity interconnector licence held by NeuConnect Britain Limited \(NBL\)](#).

To access all licence condition documentation and to understand which conditions are in effect for which licensee, visit our [Electronic Public Register](#).

**Indicative timelines for key licence processes**

Developers should take note of the relevant processing time periods and ensure that sufficient time is allowed for their application to be considered. The table below provides key licence processes and the indicative timelines underpinning these processes.

**Table 4: Key licence processes and the indicative timelines underpinning licence processes**

SLCs process or SCs process	SLCs	SCs
Licence application	The Acts require licence applicants to publish notice of their application within <b>10 working days</b> of our confirmation that an application is complete.	N/A
Application acknowledgement	<b>2 working days</b>	N/A
Application confirmation as complete	<b>10-15 working days</b>	N/A
Processing time	When an application is complete, an electricity interconnector licence can be issued within <b>65 working days</b> .	Approximately <b>one year</b> . Licence drafting can be completed within <b>6 months</b> ; statutory licence consultation <b>28 days</b> ; stakeholder feedback review and final licence modification decision within <b>3 months</b> of consultation close; and if we decide to make the proposed modifications, they will take effect not less than 56 days after the decision is published.

If the results of our checks and assessment against all relevant criteria are satisfactory, the application notice period has expired, and there are no outstanding issues or questions arising from our assessment of the application, we will proceed to grant the licence applied for to the licensee.

Licensees are expected to comply with the conditions of their licence from the date it is granted. The SLCs applicable to any licence we may grant may be modified. Licensees are responsible for ensuring that they keep up to date on any changes to the SLCs and that they are in compliance. Notices of modifications can be found on our website at: [Licence modification notices](#).

We have the power under sections 28-30F of the Gas Act and sections 25-27F of the Electricity Act to take enforcement action for breach of your licence. More information on enforcement can be found on our website at: [Ofgem's powers](#)

## 2.2 Certification

This section sets out some key aspects regarding unbundling and certification for interconnectors. Following the GB leaving the EU, Ofgem published an updated document which sets out information on our intended approach to processing applications for certification and undertaking reviews of certification following those changes.

We would advise using this publication for guidance on certification: [Certification arrangements in Great Britain following amendments to the ownership unbundling provisions of the Gas Act 1986 and the Electricity Act 1989: End of the transition period](#).<sup>6</sup>

We would typically expect applicants to start this process after the FPA stage (outlined in section 3.3).

### ***Ownership Unbundling***

In the context of electricity and gas transmission systems, unbundling means separating the ownership and operation of a transmission network from the activities of electricity generation, gas production and energy supply.

The overall objectives of ownership unbundling are to increase competition in the market, promote transparency and ensure equal treatment by TSOs of the users of their network. Without an effective separation of networks from activities of generation and supply, there is an inherent risk of discrimination not only in the operation of the network, but also in the incentives to invest adequately in the networks.

By law, all TSOs are required to be certified. Interconnectors fall within the definition of a TSO and are therefore required to conform with this law. The certification process is the

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<sup>6</sup> Link to our March 2017 publication: <https://www.ofgem.gov.uk/publications-and-updates/certification-arrangements-great-britain-following-amendments-ownership-unbundling-provisions-gas-act-1986-and-electricity-act-1989-end-transition-period>



tool that Ofgem use to assess the compliance of transmission licences with the unbundling rules.

We encourage stakeholders to familiarise themselves with the ownership unbundling requirements and related Ofgem powers. These are specified in sections 10A to 10O of the Electricity Act 1989 and grouped under a single heading of “Electricity transmission and the operation of electricity interconnectors: independence”. In particular, section 10F sets out the ownership unbundling requirements and the related discretionary powers conferred upon the Authority.

### **Monitoring**

TSOs are required to inform Ofgem as soon as possible of any change which may affect the basis of their certification under their licence conditions. In addition to this, TSOs also have to submit an annual declaration, confirming their eligibility for certification or specifying events or circumstances affecting it.

## **2.3 Access Rules and Charging Methodologies**

An interconnector licensee is required to prepare and submit for approval Access Rules (ARs) and a Charging Methodology (CM) prior to the asset being operational for new interconnector projects and, after the asset is commissioned, to actively review those methodologies yearly. The ARs set out the terms and conditions for commercial access to and use of the interconnector, and the CM sets out the methodologies for the calculation of charges imposed for access to, and use of, the interconnector.

Requirements related to the ARs and the CM are set out in the relevant sections of the electricity interconnector Standard Licence Conditions<sup>7</sup> - SLC 11 and SLC 11A for the ARs and SLC 10 for the CM.

### **Access Rules**

The ARs outline the terms on which registered members may participate in intraday, day-ahead or long-term capacity auctions on the interconnector and other rules related to access to and use of that interconnector. For more details, please see below some of the key information ARs should include, as per SLC 11A(3):

*“(a) arrangements for maximising the available interconnector capacity, including: the methodology for the calculation of interconnector capacity, the netting of capacity of any power flows in the opposite direction over the interconnector, the volume of capacity offered on a firm basis and any additional capacity offered on an interruptible basis to maximise cross-border trade;*

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<sup>7</sup> Some SLCs received minor modifications due to the end of the transition period (i.e. the period that followed 30 January 2020, when the UK left the EU, and lasted until 11pm on 31 December 2020). The related decision and outline of the modifications can be accessed at the following links:

[https://www.ofgem.gov.uk/system/files/docs/2021/02/decision\\_on\\_consequential\\_licence\\_modifications\\_due\\_to\\_the\\_end\\_of\\_the\\_transition\\_period\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2021/02/decision_on_consequential_licence_modifications_due_to_the_end_of_the_transition_period_0.pdf)  
[https://www.ofgem.gov.uk/system/files/docs/2021/02/annex\\_2\\_-\\_electricity\\_interconnector\\_1.pdf](https://www.ofgem.gov.uk/system/files/docs/2021/02/annex_2_-_electricity_interconnector_1.pdf)

*(b) arrangements for users to obtain interconnector capacity at appropriate timescales, including, where relevant, the auction rules and procedures for nominating power flows against the capacity.*

*(c) arrangements for the management of congestion, including procedures for the licensee to resell or make available to other users unused interconnector capacity and for users to transfer or resell interconnector capacity.*

*(d) arrangements in the event that the licensee curtails, withdraws or is unable to provide available capacity.*

*(e) arrangements for any ancillary services, such as balancing arrangements, including where users may offer ancillary services to assist with relevant system operator balancing; and 35 Note: Consolidated conditions are not formal Public Register documents and should not be relied on. Electricity Interconnector Licence: Standard Conditions - Consolidated to 25 February 2020*

*(f) any general terms and conditions that a user must accept in order to obtain interconnector capacity.”*

We have included below links to some examples of previously approved and currently applicable ARs for some of the current interconnectors for reference.

- [Nemo Link Access Rules](#)
- [IFA and IFA2 Access Rules](#)
- [BritNed Access Rules](#)
- [ElecLink Access Rules](#)

### **Charging Methodology**

The primary goal of the CM is to outline charges incurred by a user of an interconnector. The CM also includes a high-level summary of some principles set out in the ARs, in relation to charges, and usually contains multiple references to the ARs. For more details, please see below some of the key information a CM should include, as per SLC 10(3).

*"3. The charging methodology shall set out the methodologies for the calculation of any charges imposed for access to (including use of) the interconnector and/or the provision of ancillary services, and any payments made for access to (including use of), the interconnector, including:*

*(a) charges levied by the licensee for the allocation of interconnector capacity, including but not limited to: (i) any charges for congestion management purposes, such as the non-use of nominated interconnector capacity; and (ii) any charges for the provision (including the provision to any relevant system operator) of ancillary services, including but not limited to balancing services;*

*(b) payments made by the licensee for the provision of ancillary services provided by users or relevant system operators; and*

*(c) payments made by the licensee to users for the loss of capacity in the event of being unable to make available interconnector capacity.”*

We have included below some examples of previously approved and currently applicable CMs for some of the current interconnectors for reference.

- [Nemo Link Charging Methodology](#)
- [IFA and IFA2 Charging Methodology](#)
- [ElecLink Charging Methodology](#)

### **Assessment**

The SLCs provide high-level principles against which both the ARs and the CM are assessed by Ofgem. The information presented in the ARs and the CM should be transparent, objective, non-discriminatory and compliant with the relevant legislation – more details are provided in SLC 11A(4) and SLC 10(4).

Since interconnectors connect two countries with different regulatory regimes, Ofgem actively works with colleagues in other regulatory authorities on approving the methodologies. Apart from the ARs and the CM submitted to Ofgem as required by the licence, the licensee should check regulatory requirements with other regulatory authorities.

We have provided links to our website at the end of this section for some examples of our recently published decisions. Please note that once Ofgem approves new ARs and/or a new CM, and once the implementation period finishes, those new documents will replace the old methodologies.

### **Consultation**

Before submitting ARs or a CM to Ofgem, the licensee must consult on the content or changes to both ARs or CMs for a 28 day period with all persons who may have a direct interest (including those from other countries), both when submitting a new methodology or modifying an existing one. The relevant SLCs are:

- for ARs: SLC 11A(5/a) for a new submission & SLC 11A(10/a) for a modified submission; and
- for CM: SLC 10(5/a) for a new submission & SLC 10(11/a) for a modified submission.

### **Submission**

When submitting new or updated ARs or CMs to Ofgem, the licensee has to accompany the submission with a covering letter that includes relevant details as outlined below.

ARs (SLC 11A(5/b)) – for a new submission [similar details are required for CM – please see SLC 10(5/b)]:

*"5. Prior to submitting the Access Rules to the Authority for approval the licensee shall: (...) (b) furnish to the Authority a report setting out: (i) the terms originally proposed in the Access Rules; (ii) the representations, if any, made by interested persons; and (iii) any change in the terms of the Access Rules intended as a consequence of such representations."*

ARs (SLC 11A(10/b)) – for a modified submission [similar details are required for CM – please see SLC 10(11/b)]:

*"10. Subject to paragraphs 12 and 13, the licensee shall not make a modification to the Access Rules unless the licensee has: (...) (b) furnished the Authority with a report setting out: (i) the terms originally proposed for the modification; (ii) the*

*representations, if any, made by interested persons to the licensee; (iii) any change in the terms of the modification intended in consequence of such representations; (iv) how the intended modification better achieves the relevant access rules objectives; and (v) a timetable for the implementation of the modification and the date with effect from which the modification (if made) is to take effect, such date being not earlier than the date on which the period referred to in paragraph 13 expires.”*

### **Decision**

After the submission of the methodologies, Ofgem has up to three months to issue a decision whether the methodologies should be approved on the basis that they meet the relevant objectives. In the absence of any direction within three months of receipt the submission is deemed as approved. The relevant SLCs are:

- for ARs: SLC 11A(7) for a new submission & SLC 11A(13) for a modified submission; and
- for CM: SLC 10(7) for a new submission & SLC 10(14) for a modified submission.

### **Implementation**

After the approval, there is an implementation period of 28 days, unless Ofgem directs otherwise, as noted below.

ARs (SLC 11A(14)) - [similar conditions are applied to CM – please see SLC 10(15)]:

*“14. The licensee shall publish (at least on its website) the Access Rules as soon as practicable after the Access Rules have been approved by the Authority, or, where the Access Rules have been modified, the Access Rules as modified. Unless the Authority directs otherwise, the Access Rules shall be published 28 days prior to coming into effect.”*

### **Summary of timelines**

We expect the following process to take at least six months:

- Drafting of ARs/CMs by the licensee.
- Early engagement with Ofgem, e.g. to discuss drafts for new projects or intended changes.
- Consultation period (28 days).
- Adjusting methodologies following the consultation to take into account feedback from stakeholders.
- Post-consultation engagement with Ofgem.
- Formal submission to Ofgem.
- Ofgem’s time for issuing a decision (three months).
- Implementation period (28 days).

### **Active review process**

The licensee has a duty to review their ARs and CM each year as set out in the SLCs. If the licensee does not think that a modification is necessary, then they can notify Ofgem saying so. The relevant sections of the SLCs describing the duties related to modifying the documents are provided below.

ARs (SLC 11A(8) & SLC 11A(11)) – [similar duties are required for CM – please see SLC 10(9) & SLC 10(12)]:

*"8. The licensee shall review its Access Rules at least once in each calendar year and, subject to paragraphs 10 to 13, make such modifications to the Access Rules as may be requisite for the purpose of ensuring that the Access Rules better achieve the relevant access rules objectives.*

*11. The licensee shall not propose a modification to the Access Rules more than once a year unless the Authority consents otherwise."*

### **Amendments and review on Ofgem's request**

Ofgem has the power to request direct changes to, as well as request a review of, both the ARs and the CM if we believe this is in the interest of market participants and better facilitates relevant objectives as described in the relevant sub-section above. The change or review process follows similar process as described in previous sub-sections as per relevant SLCs:

- for ARs: SLC 11A(6) & SLC 11A(9); and
- for CM: SLC 10(6) & SLC 10(10).

### **Overview of key elements of a successful submission**

Throughout the submission process outlined in the above sub-sections, the licensee should consider the following suggestions to enhance the quality of the submission and to ensure that the submitted methodologies are fit for purpose and robust. These include:

- Establish a proper consultation process and maintain high-quality and active engagement with market participants, including tracking and replying to consultation responses and taking comments into account.
- Consider pre-consultation and post-consultation (pre-submission) engagement with Ofgem on the ARs/CMs, including providing Ofgem with early visibility of any draft versions of documents, as we want to work with parties to ensure they submit ARs and CMs which meet the relevant objectives and that we are aware of the proposed content or any upcoming changes.
- Prepare a detailed letter accompanying the formal submission, in line with the relevant SLCs as mentioned in the relevant sub-section above, which outlines the main changes, as well as reasoning for these, when submitting or updating ARs/CMs – that letter should include, for example, explanation of how the submission facilitates the relevant objectives.
- Provide Ofgem with 'clean' and 'track-changes' versions of the ARs/CMs which show the changes that have been made in comparison to the previous versions of methodologies as well as showing updates made after the consultation process, both when submitting new and updating previous methodologies.

### **Examples of Ofgem's previous decisions**

The table below shows some of the most recent examples of Ofgem’s approval decisions of ARs and CMs; more examples can be found at Ofgem’s website.<sup>8</sup> Please note that once Ofgem approves new ARs and/or a new CM, and once the implementation period finishes, those new documents will replace the old methodologies.

Please also note that some of the methodologies provided at Ofgem’s website were drafted and approved when the UK was still in the EU (and was part of the Internal Energy Market (IEM)) and were subsequently updated. Under the Trade and Cooperation Agreement (TCA) we expect further changes, reflecting the new trading arrangements, in subsequent methodologies.

**Table 5: Non-IEM methodologies – currently applicable** (a few examples)

Publication	Published
<a href="#">Approval of the Access Rules and Charging Methodology for the IFA2 interconnector to apply in case the UK leaves the EU without a deal</a>	October 2019
<a href="#">Approval of the updated Access Rules and Charging Methodology for the IFA interconnector to apply in case the UK leaves the EU without a deal</a>	October 2019
<a href="#">Approval of the modified Access Rules and the modified Charging Methodology for the ElecLink interconnector to apply in case the UK leaves the EU without a deal</a>	December 2019
<a href="#">Approval of the modified Access Rules for the BritNed interconnector to apply at the end of the transition period</a>	December 2020
<a href="#">Approval of the modified Access Rules and the modified Charging Methodology for the Nemo Link interconnector pursuant to Standard Licence Condition 11A and 10 of the Electricity Interconnector Licence</a>	February 2021

## 2.4 Regulatory Instructions and Guidance (RIGs)

This section is an overview of our cap and floor Regulatory Instructions and Guidance (RIG) and the processes that we follow whilst undertaking the cost assessments of interconnectors.

In February 2016, we published our [Regulatory Instructions and Guidance \(RIGs\)](#). In December 2019, we published [updates to it](#). We provide links to the relevant documents above and encourage our stakeholders to use these publications for full guidance.

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<sup>8</sup> Ofgem’s decisions on ARs and CMs can be accessed at the following link: <https://www.ofgem.gov.uk/electricity/wholesale-market/european-market>

The guidance sets out the purpose and structure of the RIGs, which apply to interconnectors operating under the cap and floor regime. It also sets out guidance on the process for reporting under the RIGs and our requirements.

The reporting requirements relating to the cap and floor regime are contained in Standard Condition 25 (Cap and Floor Regulatory Instructions and Guidance) of the Electricity Interconnector Standard Licence. This licence condition sets out the scope and governance arrangements for the cap and floor RIGs.

The RIGs documents should be read in conjunction with SLC 25. In the event of any inconsistency between SLC 25 or any licence condition(s) and RIGs, the licence condition(s) will take precedence.

The RIGs provide a framework that enables us to collect data from licensees during the construction and the subsequent regime period. We collect data to enable us to implement and monitor licensees' performance under the regime.

For example, the RIGs allow us to: monitor the expenditure during construction; monitor construction progress; and inform the post construction cost assessment. The RIGs also provide a database of construction cost performance, which we may draw on to set cost proposals at subsequent cap and floor windows.

### ***Cost Assessment Guidance***

Further to the RIGs guidance, we have also developed cost assessment guidance to help stakeholders understand our cost assessment process under the regime; we published this guidance in March 2021. The document also explains how developers should prepare cost submissions for our review: [Electricity Interconnectors Cost Assessment Guidance Document](#).

### ***Construction phase annual reporting***

Following the FPA stage and throughout the construction period, developers are required to submit annual reports detailing construction progress, financial information and explanations including details of any cost variations from those set at the FPA. These must be submitted to us in line with the project's licence, and the reporting must be in line with the RIGs guidance.

These annual reports ensure that a clear paper trail of all expenditures is maintained and that there is traceability of costs related both to the original contracts and to any cost variances necessary for the economic delivery of the project. We undertake an assessment of these reports and cost updates following their submission to us but do not take a final view during these assessments. The aim of the assessments is to inform our final view at the PCR stage.

The developer is required to maintain high quality financial records and evidence of expenditure during construction. The guidance provides more detail on what interconnectors should include in the required annual reporting.

### ***How we use the construction phase annual reports***

During our assessments of the annual reports, we will review the information presented, evaluate any cost changes and any items we noted to review as part of the FPA. We may ask questions through recorded supplementary questions (SQs) and discuss with the

developer any costs that need further explanation or supporting evidence. We will close our review by providing a brief summary of our provisional conclusions to the developer.

Although the annual submissions are a requirement, their review is an informal part of the cap and floor process. Therefore, the positions that we present during our annual assessments will not be finalised or confirmed until the PCR stage.

### ***Annual reporting during operation (overview)***

Once the interconnector has begun commercial operations, the developer is required to submit annual updates to us throughout the regime duration. The annual submissions during this period enable us to monitor the performance of an interconnector; compliance with licence conditions; and ensure that the project is able to finance its activities and obligations.

The RIGs and our cost assessment guidance document provide further details on the requirements associated with the operational annual submissions.

### ***Regime Reopeners***

Whilst the primary focus of the operational reporting is revenues earned by the interconnector, we also undertake an assessment of specific costs as and when this is required, most notably as a result of specific costs reopeners that may have been triggered. The relevant regime reopeners are set out in a licensee's special licence conditions. Further information can be found in section 4.4 of this document.

## **2.5 Annual use of revenue submissions**

SLC 9 requires licensees to submit, by 31 January, an annual Use of Revenues statement to ensure that revenues derived from the allocation of interconnector capacity are used in accordance with Article 19 of the Retained Electricity Regulation.<sup>9</sup> SLC 9 is applicable to all electricity interconnector licensees (unless the licensee has been granted an exemption from compliance with its provisions).

The use of revenues statement must set out:

- The total amount of revenue the licensee has received from the allocation of interconnector capacity for the 12-month period ending on 31 December of the previous year;
- The use made of those revenues pursuant to paragraph 2 of Article 19 of the Retained Electricity Regulation, including the specific projects the income has been used for;
- the amount placed on a separate account line;

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<sup>9</sup> By "Retained Electricity Regulation" we mean Regulation (EU) 2019/943 as amended by Regulation 7 and paragraph 18 of Schedule 4 of the Electricity and Gas (Internal Markets and Network Codes) (Amendment etc.) (EU Exit) Regulations 2020 (2020 No. 1006).



- the amount of income to be taken into account by the Authority when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified;
- A statement verifying that, in the licensee's view, the actual use of revenues is in accordance with Article 19 of the Retained Electricity Regulation;
- Any changes in approach or categorisation since the last submitted use of revenues statement.

We will review these submissions and may request further explanation or evidence from the licensee if the submission does not contain all required information. If we are satisfied with the reporting requirement, we will issue a direction to the licensee. In accordance with the licence, if no direction is issued by the Authority within three months of receipt of the use of revenues statement from the licensee, the submission is deemed to be approved.

By 1 March, we will publish a report setting out the information received from licensees in the statement outlined above.<sup>10</sup>

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<sup>10</sup> <https://www.ofgem.gov.uk/publications/use-congestion-income-statement-2020>

## Section 3: Cap and floor assessment framework

### Section summary

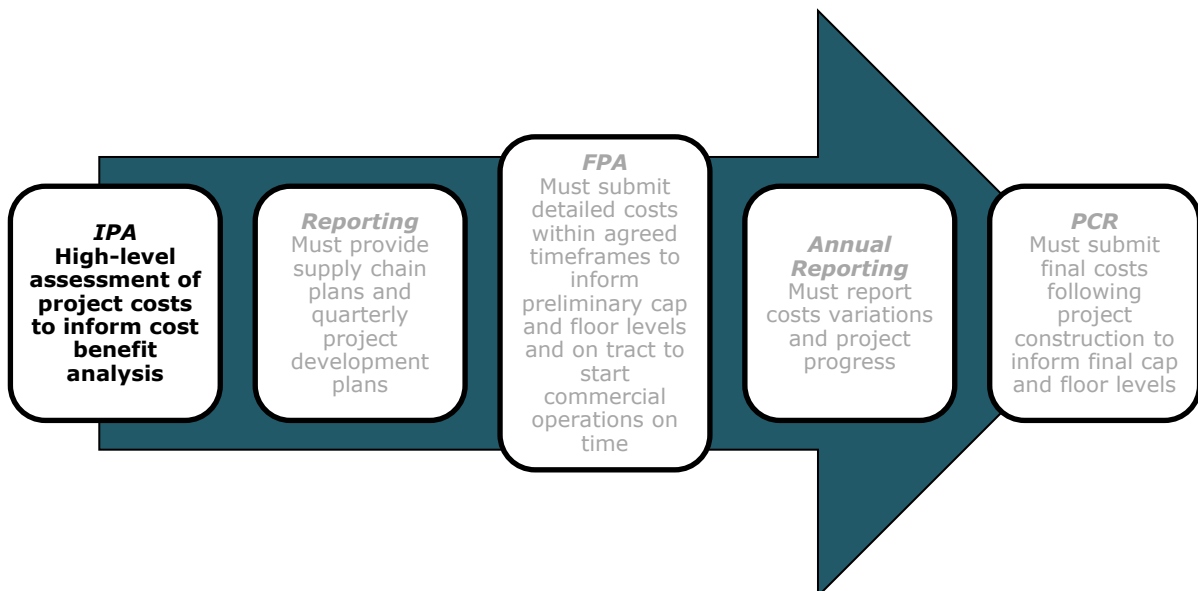
This section sets out the three assessments that we carry out to make up our cap and floor assessment framework:

- Initial Project Assessment (IPA);
- Regime variations application;
- Final Project Assessment (FPA); and
- Post Construction Review (PCR).

These assessments take place through the development and construction phases, with the PCR taking place around the time that a project starts operating. The outcomes of these assessments inform our final decision on the cap and floor levels that will apply to a project.

### 3.1 Initial Project Assessment (IPA)

Figure 3: Overview of our cap and floor assessment stages



The IPA considers the ‘needs case’ for a project. This involves undertaking a detailed cost benefit analysis for the project(s) in question with the aim of understanding how the project(s) will impact GB consumers, GB producers and GB as a whole.

This is predominately an economic and qualitative assessment, taking into account the total costs and benefits of new interconnectors and assessing the likely impacts on consumers. When reaching our minded-to positions on each project, we consider distributional impacts and wider dynamic and efficiency effects.

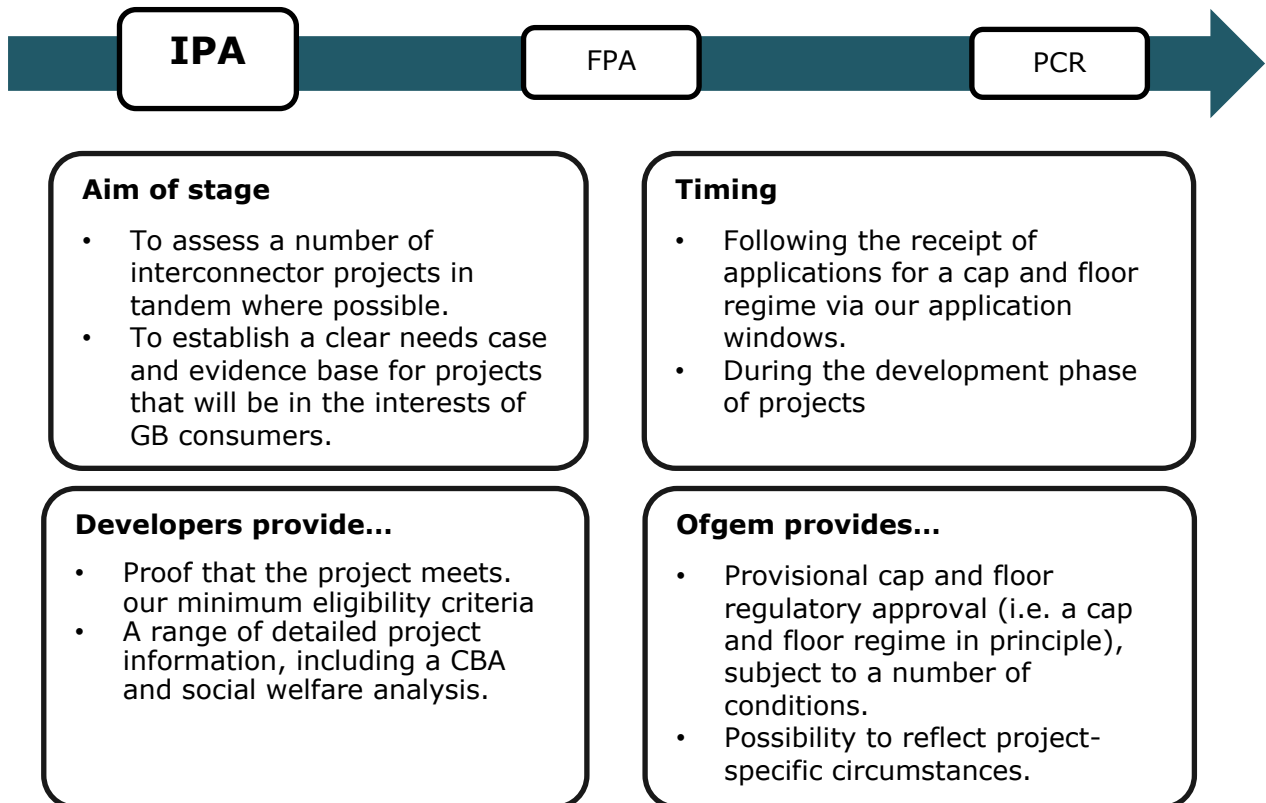
The cap and floor regime may apply to the project as a whole, as in the case of the Nemo Link interconnector. The regime also allows flexibility if the connecting country requires a different regulatory approach. In such a case, the cap and floor regime would apply to half the project’s costs and revenues (accounting for the GB licensee’s share of the interconnector). Cap and floor revenue levels are then set assuming that costs and revenues will be shared 50:50 between the GB and connecting country.

Whilst our default approach is to share costs equally, we may choose to adopt alternative arrangements in specific circumstances. This would depend on agreements reached with regulators in the country connected by the interconnector. It may also depend on agreements reached with developers of that particular interconnector. An example of this is FAB Link project, whose proposed cost and revenue sharing is 65% (GB) and 35% (France), as proposed by the developers.

Our Window 1 and Window 2 IPA assessment consultations provide further detail on our assessment process, and links to these publications can be found in the associated documents table in the Introduction Section of this document.

To date, we have undertaken our IPA stage via application windows – we have run two application windows to date. We took a window-based approach because it allows for interactions between projects to be taken into account in our analysis and provides the potential for us to consider the most beneficial projects overall in situations where the total need might be less than the number of proposals.

**Figure 4: Overview of IPA Stage**



### **3.1.1 Eligibility requirements**

#### ***Window 1***

We set out detailed IPA eligibility criteria and guidance alongside our [2014 consultation and decision to roll out a cap and floor regime to near-term electricity interconnectors](#) and then in our [October 2014 decision on cap and floor project eligibility](#).

Our eligibility criteria distinguish near-term projects from those that are less mature. Applications in the first window had to meet the following eligibility criteria and provide the necessary evidence in their application:

- an interconnector licence (granted or application duly made)
- a connection date in place to provide market-to-market interconnection by the end of 2020 (or an existing connection agreement requiring modification)
- all required submission information for the IPA stage complete.

#### ***Window 2***

We then set out detailed IPA eligibility criteria for Window 2 in our [2015 Decision to open a second cap and floor application window for electricity interconnectors](#).

Applications in the second window had to meet the following eligibility criteria and provide the necessary evidence in their application:

- a GB connection agreement for connection prior to the end of 2022
- an interconnector licence (either granted or application duly made)
- all required submission information for IPA stage complete.

### **3.1.2 Project assessment at IPA**

Our project assessment at IPA involves us assessing the impacts of the interconnector project, how existing and proposed projects interact, and whether they are likely to be in the interests of GB consumers and GB as a whole.

At the IPA stage we have assessed projects on the basis of developers' submissions, our own modelling of the impacts and information provided by the GB system operator. Our assessment includes the elements discussed below:

- Quantified Cost-Benefit Analysis (CBA) against a plausible range of scenarios, including detailed cost estimate data where possible – this should include consideration of significant uncertainties and risks relating to the project.
- Based on this, overall likely social welfare benefit and disaggregated consumer, interconnector developer and generator impacts for GB and other relevant countries (with particular explanation of impacts on GB consumers' interests).
- Qualitative evaluation of any additional hard-to-monetise benefits, costs and risks that aren't reflected in the CBA. This will feed into our strategic and sustainability assessment.

- Justification of the chosen connection location, interconnector capacity and technical design (e.g., converter technology and cable type), including by reference to comparison against other reasonable options.
- Input from GB system operator on the efficiency of the timing and location of the connection point, and the value of interconnector projects for system operation (i.e., impact on constraint costs and value of ancillary services).
- Project feasibility, including key milestones and progress with other national regulatory authorities, financing plans and supply chain plans.
- Whether there are any particular aspects of the project needs case that are likely to merit further consideration or revisiting as part of the final assessment stage.

In making our assessment, we will want to be satisfied that:

- The proposed project provides a clear benefit case for GB consumers and justifies the regulatory support requested.
- By comparison with relevant alternatives, the proposed project is an appropriate option for delivering such benefit to consumers.
- The proposed project is realistic, being planned robustly and expected to be delivered in line with the parameters set out in the IPA submission.

### 3.1.3 IPA timelines

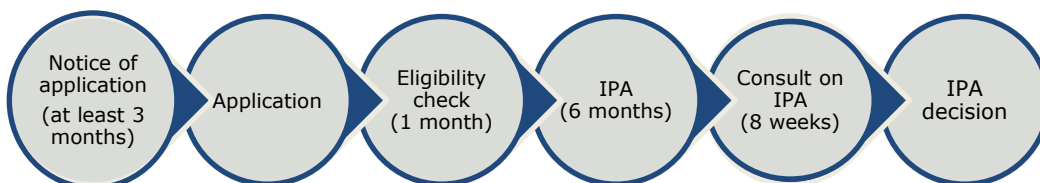
As a guide, we expect to make IPA decisions within nine months from the close of the application window, subject to consultation on our IPA minded-to decisions. This consultation would normally run for eight weeks.

Where the timings of applications allow, we assess and consult on projects together. However, we may make our decision on how to group our assessment based on the following:

- The timings of applications.
- The likely interactions between the projects applying.
- The maturity of a project and its immediate timescales.

If we assess projects in isolation or in smaller groups, we may assess them against a suitable set of assumptions for future interconnection development.

**Figure 5: A typical timeline for the IPA stage**



### **3.1.4 IPA conditions**

As part of our Window 1 and 2 IPA decisions, we placed a number of conditions on projects to ensure that developers are incentivised to deliver projects in a timely and efficient manner.

#### ***Window 1 conditions***

Initial Window 1 IPA conditions were set out in the [2015 Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors](#).

In particular, we noted that our decisions for each of the successful projects are contingent on progress being generally in line with the timelines, cost estimates and commercial arrangements provided in the project's IPA submission.

For cost estimates, the condition is that the costs submitted by the project developers do not materially rise. We will consider the threshold for materiality of any cost escalation against the potential impact on the needs case and consumer benefits, the original estimates provided, and comparable costs for similar projects.

In order to maintain eligibility for the cap and floor regime, each project is required to submit sufficiently detailed information for our FPA to start within three years of the IPA decision – see further information on this below in 'Timings between IPA and FPA'. This information will need to be informed by detailed discussions with the supply chain and tender returns to support cost estimates. To make sure consumer interests remain protected, we also require developers to:

- Provide us with quarterly written reports on progress against a number of key development milestones, including (but not limited to) development work, consenting, and permitting, procurement, financing, operational management plans and costs, project management and other factors that had an impact on our IPA welfare assessment.
- Confirm the timing of FPA submission in writing to Ofgem at least two months before the expected submission date.
- Additionally, give formal written notice of any material changes to the project's design, such as changes in capacity, connection location or connection date.

If any information given to us before making our IPA decision leads us to consider that the basis of our IPA decision has materially changed, then we may choose to require a new IPA stage. In this case, we may re-run our analysis in order to confirm whether or not the project continues to be in consumers' interests and should continue to be granted a cap and floor.

Material changes would include any prospective delays in project delivery of more than 3 years.

#### ***Regime start and end date (Window 1)***

The start date of the 25-year cap and floor regime for a particular interconnector project reflects an element of the minimum eligibility criteria for the relevant cap and floor application window (as noted in the eligibility section above), so for Window 1 projects - this was the earlier of the actual connection date or 1 January 2021.

In situations where projects are delivered later than 1 January 2021, the 25-year duration of the cap and floor regime will be reduced by the length of the delay. This will effectively give the regime an end-date of 31 December 2045, regardless of the operational start-date. Some of the regime period lost due to delays may be reinstated where the delay was caused by an event or circumstance of pre-operational force majeure via our pre-operational force majeure mechanism.

### ***Backstop date (Window 1)***

The regime start date of all Window 1 projects is 1 January 2021 with a connection deadline/backstop date of 1 January 2024. Any delay beyond the connection deadline may mean revisiting our IPA analysis. This was set out in our IPA conditions above, and further clarified in the [Decision on the Final Project Assessment of the Viking Link interconnector to Denmark](#).

### ***Timings between IPA and FPA (Window 1)***

Our August 2014 cap and floor rollout decision put in place an IPA condition whereby projects that are successful at the IPA stage had two years to submit sufficient information for our FPA assessment to begin.

The intent of this IPA condition was to ensure that developers make timely progress with their respective projects, and to recognise that the justification for a project may change over time. Our initial Window 1 IPA conditions were set out in the [2015 Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors](#).

To ensure that our regulatory framework is not a barrier to projects that would otherwise deliver benefits for consumers, we provided a 12-month extension ([An update on 'Window 1' interconnector projects](#)) in 2017 to our original 2 year deadline from IPA decision to FPA submission. We noted in the 2017 letter that in cases where projects were unable to submit sufficient information within the extended deadline, we would redo the IPA on a project-specific basis and confirm or remove the cap and floor for the project.

We discussed the specific circumstances of each Window 1 project in our October 2018 letter: [Timing of the Final Project Assessment \(FPA\) for 'Window 1' interconnector projects](#). In addition, we proposed not to place an additional fixed deadline on submissions. Rather, we expect an FPA submission to follow a reasonable period of time after each project's circumstances are clarified. If we are concerned that this is not the case, we will redo the IPA for each project.

### ***Window 2 conditions***

Our initial conditions and amendments for Window 2 were set out in our 2017 consultation and decision on [Initial Project Assessment of the GridLink, NeuConnect and NorthConnect Interconnectors](#):

1. If any information given to us before making our FPA decision leads us to consider that the basis of our IPA decision has materially changed, then we may choose to require a new IPA stage. Material changes would include any prospective delays in project delivery of more than 3 years.

2. We will also reconfirm at the FPA stage that the assumptions regarding connected country energy market access and electricity trading rules on which the IPA decision was based remain broadly correct at the time of the FPA. Should this position change, Ofgem reserves the right to revisit the needs case in order to confirm whether or not the project continues to be in consumers' interests and should continue to be granted a cap and floor arrangement.
3. Project progress is generally in line with the timelines, cost estimates and commercial arrangements provided in the project IPA submissions. For cost estimates, the condition is that the costs submitted by the project developers do not materially rise. (We will consider the threshold for materiality of any cost escalation against the potential impact on the needs case and consumer benefits, the original estimates provided, and comparable costs for similar projects.) For the avoidance of doubt, this condition also includes developers reaching agreement with the relevant NRA in the connecting country, on the regulatory treatment for the non-GB portion of its interconnector, by the FPA submission date.
4. Developers must also:
  - (a) Submit sufficiently detailed information for our FPA to start within three years of an IPA decision. This information will need to be informed by detailed discussions with the supply chain and tender returns to support cost estimates.
  - (b) Submit quarterly written reports on progress against a number of key development milestones, including (but not limited to) development work, consenting, and permitting, procurement, financing, operational management plans and costs, project management and other factors that had an impact on our IPA welfare assessment.
  - (c) Confirm the timing of FPA submission in writing to Ofgem at least two months before the expected submission date.
  - (d) Give formal written notice of any material changes to the project's design, such as changes in capacity, connection location or connection date. Following any such change, developers must explain the rationale for the change and the implications for project costs and delivery timescales.

### ***Regime start and end date (Window 2)***

The start date of the 25-year cap and floor regime for a particular interconnector reflects an element of the minimum eligibility criteria for the relevant cap and floor application window (as noted above in the eligibility section). So for Window 2 projects – this was the earlier of the actual connection date or a date up to 12 months after the target connection date of the end of 2022 (i.e., by 1 January 2024).

The 12-month addition was added in our [2015 Decision to open a second cap and floor application window for electricity interconnectors](#). In situations where projects are delivered later than 1 January 2024, the 25-year duration of the cap and floor regime will be reduced by the length of the delay. This will effectively give the regime an end-date of 31 December 2048, regardless of the operational start-date. Some of the regime period lost due to delays may be reinstated where the delay was caused by an event or



circumstance of pre-operational force majeure via our pre-operational Force Majeure mechanism.

### ***Backstop date (Window 2)***

The target connection date for Window 2 projects was the end of 2022. In our first Window 2 IPA condition, we noted that material project changes would include delays of more than three years from this date. This therefore gives a connection deadline, or backstop date, of end 2025. Any delay beyond this connection deadline may mean revisiting our IPA analysis.

### ***Timings between IPA and FPA (W2)***

Developers must submit sufficiently detailed information for our FPA to start within three years of an IPA decision. This information will need to be informed by detailed discussions with the supply chain and tender returns to support cost estimates. If developers fail to submit within three years of IPA decision, we may revisit our IPA analysis.

### ***Conditions for both Window 1 and Window 2***

#### ***Force majeure***

In our [2017 update on 'Window 1' interconnector projects](#) letter, we proposed to exclude delays to the regime start date caused by force majeure events as we understand that sometimes delays are caused by specific external factors. Whilst the IPA and FPA conditions for Window 1 and Window 2 projects on regime start and end dates remain in place, we will exclude the duration of any delays caused by force majeure events from the conditions.

If any pre-operational force majeure application by a licensee is unsuccessful, the cap and floor levels will continue to be based upon the assessed expenditure over a 25-year period and the expected target connection date. This means that if a project is operational later than 1 January 2021 (Window 1) and 1 January 2024 (Window 2), the regime duration is reduced but the cap and floor levels are the same as they would be otherwise.

Further to this, in 2021 we consulted on our proposed approach to providing a means for cap and floor interconnectors that have encountered delays caused by force majeure events during the pre-operational period to request a later regime start date.

Detail on the process interconnectors should follow is set out in our June 2021 decision on force majeure mechanism: [Cap and floor interconnectors: Decision on pre-operational force majeure arrangements](#).

#### ***CIION agreement and supply chain plans***

Where developers did not include a CIION in their IPA submission, they must provide this to us as soon as possible thereafter (i.e. developers must provide us their CIION as soon as it is agreed with NGET/NGESO, as opposed to waiting until their FPA submission).

Separately, developers must also provide a public-form supply chain plan for each project that can be published on our website.

### ***Project-specific conditions***

In addition to the general Window 1 and Window 2 conditions, some projects are set specific conditions based on their individual circumstances.

The Greenlink IPA decision in particular is contingent on some conditions specific to the project, details of these are outlined in our September 2015 [Decision on the Initial Project Assessment of the Greenlink interconnector](#). These are intended to reflect assumptions that our updated analysis for the Greenlink projects is particularly sensitive to.

Greenlink will need to fulfil these conditions by the point at which we consult on our FPA, unless otherwise agreed with us at the FPA stage. These conditions are:

- The final form of Greenlink's connection agreement must not negatively affect our updated analysis. The connection agreement would be the vehicle to confirm the use of an intertrip on the project. It is for NGET and Element Power to agree a bilateral connection agreement. We require confirmation of this agreement prior to Element Power's FPA submission. As previously mentioned, we expect that any costs incurred by Greenlink as a result of intertrip use should be excluded from calculation of any cap or floor payments.
- The I-SEM market design should not negatively affect our updated analysis. If the final design is different to the current direction of travel and this could reasonably be expected to negatively affect the welfare case for the project, then we will reassess this as necessary.
- Our granting of a cap and floor regime in principle applies to only 50% of the project's costs and revenues. The other 50% of the value of the project should be appropriately supported, including through the Irish regulatory regime.

If we consider that IPA conditions have not been met or are likely not to be met, we will notify the project developer. If so, we will also consider the most appropriate approach to assessing the needs case for that project. The approach used may vary per project depending on the conditions that have not been met, the project specific circumstances, and the broader policy environment at the time.

When reassessing projects that have not met their IPA conditions, we will focus on aspects of the needs case that are most likely to be impacted. This may include an internal reassessment of any of the aspects of the needs case considered at IPA stage, or any other evidence that might be relevant to the project.

We recognise the impact that a needs case reassessment might have on the project developer, its partners and financiers. We will try to undertake the process in a timely manner and remain transparent with the project developer throughout.

## 3.2 Regime variations application

Developers may request variations to the default regime at the IPA or FPA to accommodate different types of efficient financing solutions. If developers request variations at the IPA stage, they must clearly state whether their submission is conditional on the proposed variations being approved.

Developers can decide the specific timing of submission based on their project-specific circumstances. However, developers should bear in mind that the timelines of our processes (e.g. timing and duration of the FPA) will have to be respected. This means developers should make sure that requests for variations are closely aligned with the current cap and floor regime processes. In particular, where relevant, developers should allow sufficient time for Ofgem to assess and consult on regime changes and, where appropriate, for developers to run a funding competition to allow the cap and floor to be set as part of our final FPA decision.

After IPA, our preference is for developers to request regime variations when they have all the necessary information that will enable us to assess their request properly and in a timely manner.

Any request must:

- explain in detail what they are proposing and provide all useful evidence;
- include financial modelling of the regime design with and without the change to show impacts of any change on consumers; and
- justify why the change is in consumers' interests.

Developers should engage with us at least three months ahead of a formal request. Our December 2015 letter [Enabling a range of financing solutions under the cap and floor regime](#) sets out detailed requirements for developers interested in requesting regime variations.

### 3.2.1 Regime variations application assessment

We would normally assess the impacts of the requests made by developers - this is an Impact Assessment carried out within the meaning of section 5A of the [Utilities Act 2000](#). Our assessment focuses on consumer impacts of making variations to the default regime that developers have requested.

Our first assessment is a draft Impact Assessment, which we would normally publish alongside our consultation on the regime variations request. Our next assessment updates the draft Impact Assessment to take into account consultation responses from stakeholders. This updated (final) Impact Assessment is published alongside our final decision setting out the regime variations we have approved, and any additional conditions attached to it.

The following are indicative timelines to enable developers to plan accordingly:

- Notify Ofgem three months ahead of making a formal variations request
- Allow six months for our assessment of request
- Allow another six months for consultation and decision.

Developers should review our October 2019 [Consultation on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#), and May 2020 [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#), following the consultation to see how we considered our first regime variations requests.

### 3.2.2 Regime variations implementation

Requesting regime variations is a developer-led process and the sequencing of our implementation decision may sometimes be driven by the process followed by each developer, as long as the process is efficient.

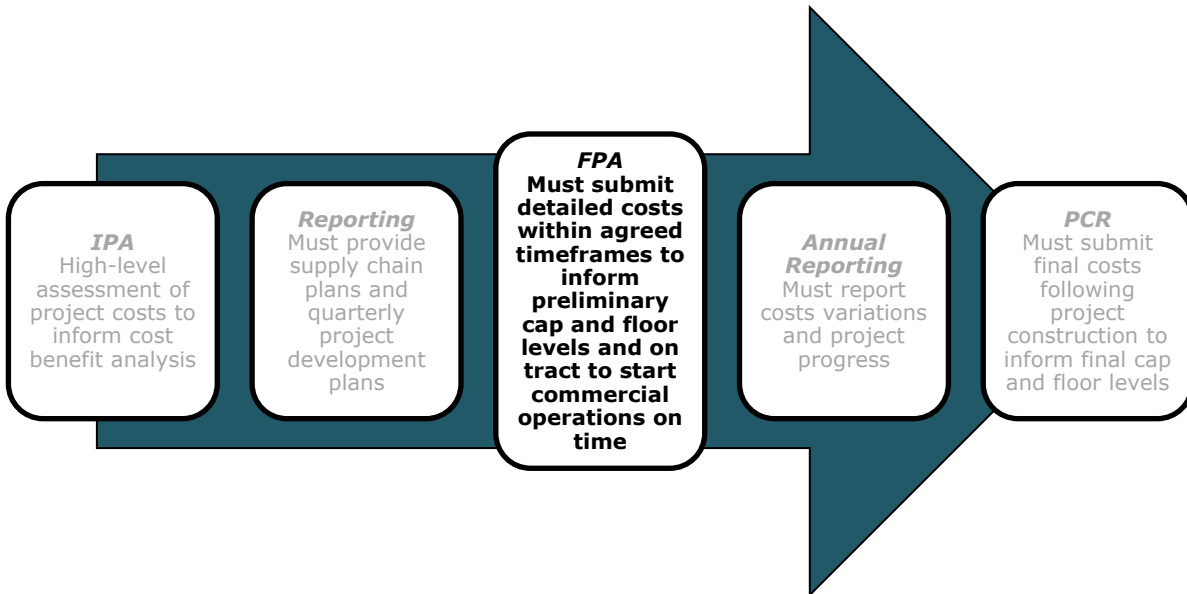
This would typically start with a statutory consultation to update the licensee's electricity interconnector licence and end with publication of the preliminary cap and floor levels that would apply for the project. More detail on the process is provided below:

- **Licence modification consultation and decision** – We conduct a statutory consultation on proposed changes to the electricity interconnector licences held by the licensee. These changes are required in order to implement the cap and floor regime and variations to the regime that apply to the interconnector.
- **FPA decision** – We consult and make a decision on FPA, setting out the efficient costs that will apply to the interconnector. Our past FPA decisions have followed contract awards (FID), as was preferred by the respective project developers, and have set out the preliminary cap and floor levels that apply for the projects. Our approach for interconnectors seeking regime variations is different, FID may follow our FPA decision as this would give potential lenders a clear view on the project costs that GB consumers will support.
- **Financial Close** – We oversee a debt financing process undertaken by developers and concluded at financial close. We sign-off on the financial parameters agreed with lenders at financial close if we consider that the process was competitive and transparent.
- **Publication of preliminary cap and floor levels** – We run the CFFM1 based on project costs approved at FPA and financial parameters determined at financial. The CFFM1 generates two floor levels - the preliminary actual floor level which reflects actual values confirmed at financial close and the preliminary notional floor level which reflects notional values based on our default regime approach. We then publish the updated CFFM1 and a decision setting out the preliminary cap, actual floor, and notional floor levels to apply for the interconnector.

The preliminary cap and floor levels set following financial close are not final. They will be finalised following our PCR assessment to account for eligible changes in costs between the FPA stage and the PCR stage. Please refer to the PCR section for more detail on the scope of our PCR process.

### 3.3 Final Project Assessment (FPA)

Figure 6: Overview of our cap and floor assessment stages

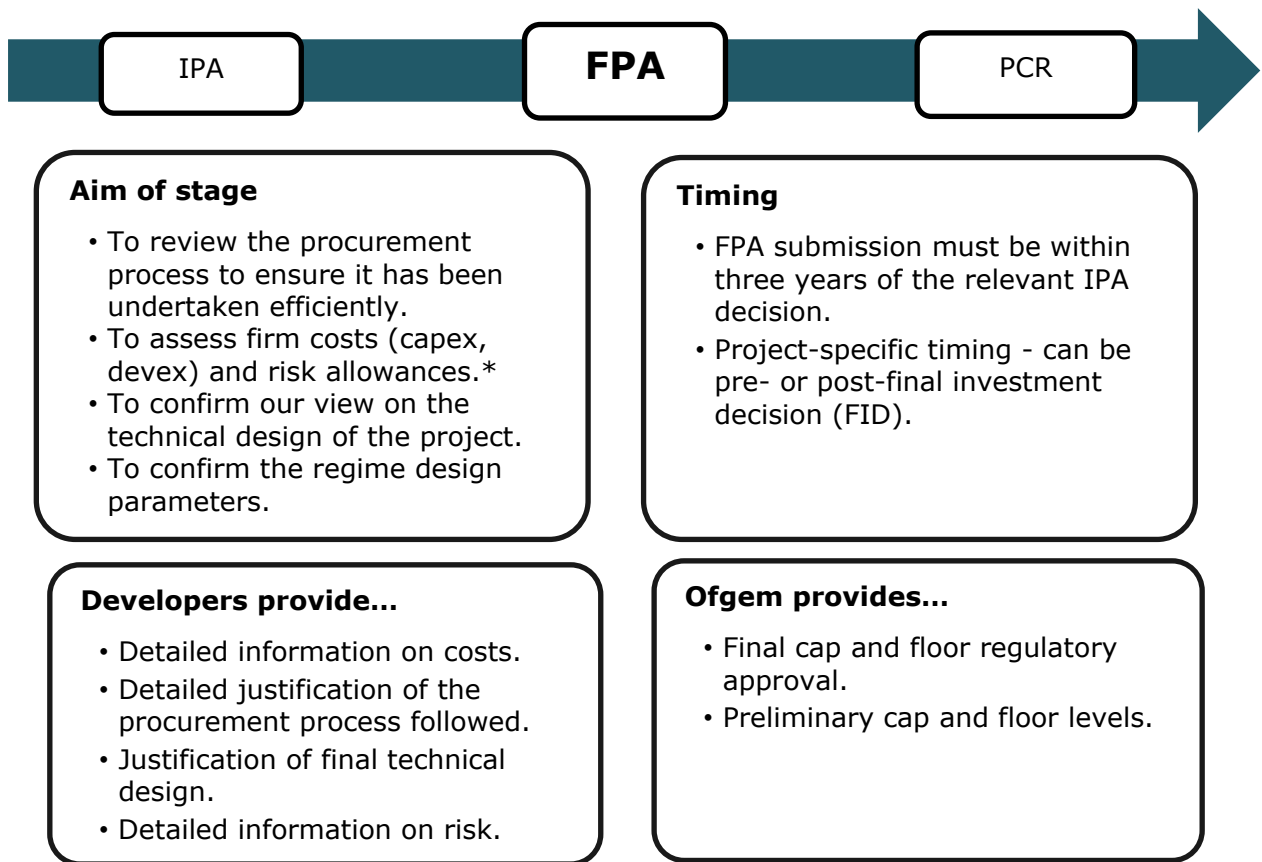


The FPA stage is when we confirm the grant of a cap and floor regime and set the preliminary cap and floor levels. The following key steps are necessary to complete this stage and specify regime parameters for a project:

- assessing the technical design of the project and reviewing the procurement process to ensure it has been undertaken efficiently;
- assessing the economic and efficient costs associated with developing, constructing, operating, maintaining, and decommissioning of the licensee’s interconnector and risk allowances;
- setting the project’s financial parameters and target availability incentive value;
- developing a project-specific cap and floor financial model (CFFM); and
- adding special licence conditions (through a statutory consultation on licence changes) to the electricity interconnector licence held by the licensee. This can happen in parallel with FPA process or soon thereafter.

The figure below provides an overview of key information to be aware of about the FPA stage.

**Figure 7: Overview of FPA stage**



\* Developers may also request opex assessment at FPA stage on a project-specific basis

### 3.3.1 Eligibility requirement

Developers should be meeting all of the conditions set at their IPA decision in order to submit their FPA; any conditions not met could affect the project’s eligibility to submit an FPA.

Developers must confirm the timing of FPA submission in writing to Ofgem at least two months before the expected submission date.

Developers are welcome to submit information for their FPA either before or after taking a final investment decision. However, this information must be sufficiently detailed for us to complete our FPA stage. We can work with developers prior to submission to ensure that the right information is included for the FPA stage, including factoring in any final contract prices as developers move through the procurement process.

### 3.3.2 FPA submission

The FPA submission should be well structured and evidence based. The submission should provide a robust case for the costs and their drivers to be considered in the calculation of preliminary cap and floor levels.

Costs should be disaggregated as much as practically possible, in line with the cost template we provide. Ahead of FPA submission we will provide the project developer with an FPA guidance document which may include project-specific aspects as required. Ofgem usually expects the submission from the developer to be split into four parts (Table 6).

**Table 6: FPA submission sections**

<b>1</b>	<p><b>Project narrative:</b> This explains the structure of the submission, summarises the project costs and tender process at a high level and provides a general overview of the project. The narrative should include but not be limited to:</p> <ul style="list-style-type: none"> <li>a) A technical summary of the interconnector, explaining the scope of the project.</li> <li>b) The legal form of the ownership and operational vehicle.</li> <li>c) Information on whether contracts are procured on a joint or individual basis, and information on which the cost submission will be based (e.g. joint EPC for the whole project).</li> <li>d) Summary of the tender process, the selection criteria for bidders and costs of each project element expected to be achieved based on tender returns.</li> <li>e) A comparison of expected project costs at IPA and FPA stages. This should include an explanation of any significant cost deviation from the IPA cost submission.</li> <li>f) Information on where project revenues will be received, in which currencies and on what basis.</li> <li>g) Information on the currency that the project and company accounts will be denominated in.</li> <li>h) Details of any Parent Company Guarantees or Letters of Credit.</li> <li>i) Details of land ownership.</li> <li>j) Each area should be indexed to the supporting documentation. Where information provided in the FPA submission deviates from the information submitted as part of the IPA, it should be clearly flagged along with a justification for this deviation.</li> </ul>
<b>2</b>	<p><b>Cost Assessment Template:</b> A completed version of the Ofgem cost assessment template spreadsheet. This should include, as a minimum:</p> <ul style="list-style-type: none"> <li>a) A summary tab of the entire/total project costs, including development, operational and decommissioning expenditure.</li> <li>b) Separate tabs/sheets with further cost disaggregation (e.g. subsea cable, converters, risks etc.).</li> </ul>

	<ul style="list-style-type: none"> <li>c) References to any supporting tender/contract terms and quotes, studies, reports or other relevant documents that provide the evidence base should be clearly referenced within the cost assessment template.</li> <li>d) Information on the nature of each cost (i.e. whether the cost is fixed, fixed subject to movement, hedged, variable, etc.)</li> <li>e) The costs should be indexed to support the spreadsheets (or tabs in the same spreadsheet), showing the calculations. The costs should be submitted in nominal terms, but developers should check with us to confirm that this is still our view.</li> <li>f) The calculations should use the key assumptions (e.g. forex rates, inflation etc.) specified in the cost template by Ofgem. Where additional assumptions are being made outside the ones specified by Ofgem, those should be clearly set out in the cost template in the comment's column.</li> <li>g) Furthermore, the supporting source data from the contractor/ bidders should be provided to Ofgem in their original native format.</li> </ul>
3	<p><b>Project Risk Management Strategy and Risk Register:</b> This should cover the following:</p> <ul style="list-style-type: none"> <li>a) The overall project management strategy, including hours worked/to be worked and rates used.</li> <li>b) The risk management strategy, including an overall view of the risk analysis process (i.e., Risk Identification, Assessment, Responses Development and Ownership).</li> <li>c) Policies for managing hedging (e.g., forex) and cost overruns or delays and a copy of project Risk Register provided in excel format.</li> </ul>
4	<p><b>Supporting Documentation:</b> Detailed information regarding the procurement process and project costs should be provided in this section. The information should justify the cost drivers of each project element. Explanations should be provided in areas that might drive costs away from industry standards. This should include, but not be limited to, the following:</p> <ul style="list-style-type: none"> <li>a) All the tender information that has been shared publicly during the tender rounds. The information should present how many bids were received, on what terms and prices.</li> <li>b) In addition, the following tendering information should be provided:             <ul style="list-style-type: none"> <li>- Project specifications (what was tendered).</li> <li>- Original ITT issued. We may ask for full copies or parts of the tenders returned.</li> </ul> </li> <li>c) An outline of award criteria, and standardised and quantified comparison of all the bids. Clear, estimated value ranges must be presented for 'difficult to quantify' selection criteria. All the assumptions used, especially for valuing risk related items should be clearly set out.</li> <li>d) A summary table of the entire bidding process to show the chronological sequence of events and actions, including dates, actions taken or comments by the contractor and actions taken or comments by the developer. This should also include information where bidders dropped</li> </ul>



	<p>out or were disqualified from the process and rationale for any such actions by the developer.</p> <p>e) An explanation of the next steps regarding the procurement process, including any actions yet to be taken by bidders(s) and the developer(s).</p> <p>f) Related party margins, if applicable.</p> <p>g) Cost allocations and the methodology used, if applicable.</p> <p>h) A document register including the:</p> <ul style="list-style-type: none"> <li>- Scope/technical drawings.</li> <li>- Design and engineering studies.</li> <li>- Site surveys and evidence of these being passed to relevant contractors/bidders (e.g. environmental, geotechnical condition, UXO etc.).</li> <li>- Technical equipment testing reports.</li> <li>- Route and site selection reports.</li> <li>- Any relevant consultant reports.</li> </ul> <p>The register should cover document title, date produced, suppliers’ names, and a brief description of the report objective (for any supporting third-party reports). Ofgem does not require the original documents listed in the register as this stage. However, we may require specific documents from the register if those documents are deemed necessary to support the FPA exercise.</p>
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**FPA submission checklist**

The main aim of the checklist below is to assist developers with the documentation submission. Detailed description of each item is provided in the above sections of the guideline.

**Table 7: FPA submission checklist**

Item No.	Document Type	Content	Complete and Submitted
<b>1</b>	Project narrative	Technical summary	<input type="checkbox"/>
		Legal form of the ownership	<input type="checkbox"/>
		Contracts Structure	<input type="checkbox"/>
		Summary of the tender process	<input type="checkbox"/>
		Project Revenues	<input type="checkbox"/>
		Currency of company accounts	<input type="checkbox"/>
		Parent Company Guarantees or Letters of Credit	<input type="checkbox"/>
<b>2</b>	Ofgem cost assessment template spreadsheets	Summary tab of the entire project costs	<input type="checkbox"/>
		Cost disaggregation tabs for each bidder	<input type="checkbox"/>
		Nature of each cost (fixed. Etc.)	<input type="checkbox"/>

		References Column	<input type="checkbox"/>
3	Project and Risk Management	Project management details	<input type="checkbox"/>
		Risk Management Strategy	<input type="checkbox"/>
		Policies for managing hedging	<input type="checkbox"/>
		Policies for managing cost overruns & delays	<input type="checkbox"/>
		Risk Register	<input type="checkbox"/>
4	Supporting documentation	All the tender information	<input type="checkbox"/>
		Related Party margins	<input type="checkbox"/>
		Cost allocations and the methodology	<input type="checkbox"/>
		Documents Register	<input type="checkbox"/>

**Cost Assessment Guidance**

Ofgem provides templates that will capture the cost information required. Each cost item in the template should have a corresponding indicator showing the level of certainty in the estimate (input into the first blank column alongside the data, for each cost item).

**Table 8: Cost classifications**

	Classification	Description	Supporting Documentation
1	Fixed	The cost would not be subject to change and will have supporting documentation matching the amount.	Supporting evidence where costs have already been incurred / Tender documentation
2	Agreed, but re-measurable	The cost has been agreed or estimated but is subject to change in case of <u>unexpected</u> changes to the scope of works.	Tender documentation
3	Agreed, but will be re-measured based on known future information received	The cost has been agreed or estimated but will be subject to change due to clarifying the scope of works or due to additional surveys and assessments being undertaken at the moment.	Tender documentation
4	Estimated	Cost estimated based on assessments, actual surveys,	Spreadsheet with the calculations. Emails/minutes of meetings with specific mention of the variables that have been

		using experience, and examples from other projects.	used in calculating these estimates, the person and company providing the calculations and information. List of surveys done as well as documentation of the surveys.
5	Early estimate	Costs estimated through modelling cost ranges from different projects and experience.	Spreadsheet with the calculations. Emails/minutes of meetings with specific mention of the variables that have been used in calculating these estimates, the person and company providing the calculations and information. List of surveys to be performed to increase the confidence of the cost estimates.

Although we have set out guidance on FPA submission above, developers should discuss their submission with Ofgem in advance. We would normally then also issue specific and detailed FPA guidance to the developers.

### 3.3.3 Project assessment at FPA

The typical FPA assessment process structure is set out below. In some instances, developers may request a different structure, such as a phased approach to the FPA, where required to enable a specific financing approach for example. We will consider such requests on a case-by-case basis.

1. **Initial review** - an initial review of the FPA submission by Ofgem to ensure the necessary information has been provided. We expect this process to take two weeks (subject to the quality and completeness of the information submitted).
2. **Supplementary questions** – this involves multiple rounds of supplementary questions (SQs) between the developer and Ofgem. The purpose of the SQs process is to capture any clarifications sought by Ofgem on project specific issues and to ensure we have a clear and complete basis for our assessment. We require active and timely engagement with the developer during the SQs, failure to do so may delay the FPA process.
3. **Full information review** - a full review of FPA information by Ofgem to determine efficient cost allowances and this will be used to inform the provisional cap and floor levels. Ofgem may use technical consultants to support its analysis; in such an event, we would expect the developer to co-operate fully with any consultants to help us arrive at our view of efficient costs. In such cases we would expect to share the developer’s FPA submission information with our consultants as necessary. The developer should clearly flag any issues or concerns with this approach as part of the FPA submission.

4. **Developer engagement** - meeting(s) between the developer and Ofgem will be held to discuss Ofgem's initial view on cost allowances. The objective is to provide visibility to the developer and to discuss any concerns (from either side) prior to the public consultation stage. We aim to provide a summary of Ofgem's initial view of the cap and floor levels prior to any such meeting(s).
5. **Public consultation process** - Ofgem's FPA, including our views on efficient cost allowances for the interconnector and resulting provisional cap and floor levels may be subject to public consultation. Ofgem would expect to consult on the FPA for four weeks, if required. During our FPA stage we only consult if there are significant changes from the information we published at the IPA stage [Update on the Final Project Assessment stage for Window 1 interconnectors](#). In situations where there are no significant changes, our default approach will be to engage bilaterally with the relevant project developers during our FPA assessment, and then to publish our FPA decision without a public consultation. We would still expect to consult for four weeks in situations where:
  - a) project costs have materially increased;
  - b) we think the expected impacts of the project have changed significantly since our IPA decision;
  - c) the project has requested variations to the default regime design that we are minded to approve;
  - d) the project does not meet the conditions that were attached to our IPA decisions; or
  - e) the project has otherwise changed significantly.
6. **FPA decision** - our IPA for the interconnector granted the project a cap and floor in principle, subject to certain conditions. At the FPA decision stage, we confirm a cap and floor grant and set provisional cap and floor levels for the project. Where an alternative approach to the FPA has been agreed with the developer we may issue an FPA decision that confirms the cap and floor regime and a provisional view of efficient costs but delay the publishing of preliminary cap and floor levels until project financing has concluded, in order to take key financial parameters into consideration.

After the FPA decision, we update the special licence conditions (usually around 6-9 months after) to reflect the provisional cap and floor levels. This timeframe can be discussed with developers as some projects may want the special conditions updated sooner than 6-9 months after the FPA decision.

In the absence of firm operational (opex), decommissioning expenditure (decommex) and replacement (repex) costs at the FPA stage, Ofgem may conduct a further thorough assessment of these items at the PCR stage.

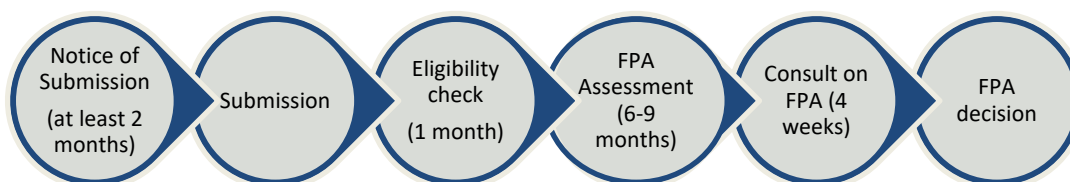
Following the FPA, special licence conditions that implement the cap and floor regime will be inserted into the licence for the licensee. This process is set out in Section 2.1 of this handbook.

### 3.3.4 FPA timelines

Please note the following timelines:

- Developers must confirm the timing of FPA submission in writing to Ofgem at least two months before the expected submission date.
- Developers should submit sufficient information for our FPA assessment to begin, three years after successful IPA stage.
- We would expect an FPA assessment to take around 6-9 months. This can vary depending on the project and the steps of the FPA progress. For example, this can be extended should the supplementary question stage take longer.

**Figure 8: A typical timeline for the FPA stage**



### 3.3.5 FPA conditions

Following the FPA, projects will be required to submit annual reports during the construction phase, including cost variations from those set at the FPA. Projects will be required to submit detailed financial information and explanations of any changes annually. Projects will need to maintain high quality financial records, according to the requirements set out by Ofgem, in our [Updated Cap and Floor Regulatory Instructions and Guidance](#).

The following broad principles will apply during our assessment:

- Developers’ costs will be subject to the same scope and level of assessment regardless of when they take the decision to invest.
- Where developers take a decision to invest prior to the FPA, and commit to certain contracts and levels of expenditure, there is no guarantee from Ofgem that this expenditure will be deemed efficient and will be reflected in the cap and floor levels.
- In order for Ofgem to undertake a FPA prior to the developer’s investment decision, developers will need to provide reasonably certain tender returns (as a minimum), including proof of negotiations and preferred bidder selection (and criteria). We aim to give as much clarity as possible to inform developers’ investment decisions. We may also require a post-FID adjustment to the cap and floor levels to ensure that any efficiently-incurred variations to the contract prices following tender returns are captured in the cap and floor levels.

The order of the FPA process may differ slightly depending on whether the FPA takes place pre- or post-FID. However, the principles and the areas of assessment will remain the same.

### **3.3.6 Interactions with the regime variations process**

Any potential request for regime variations must respect the timelines of general regulatory process set out by Ofgem. This means that requests for regime variations must come in with sufficient time for Ofgem to assess them and consult on them. The regime variations consultation could happen ahead of or in parallel with the FPA consultation.

We will not take our FPA decision without finalising the methodology for calculating the cap and floor levels first.

### **3.3.7 Cost elements determined at FPA versus those determined at PCR**

The costs determined at FPA are often planned costs, and there is a possibility these costs may change. The PCR is an assessment of actual costs and these are the final costs taken into consideration for setting the cap and floor for a project.

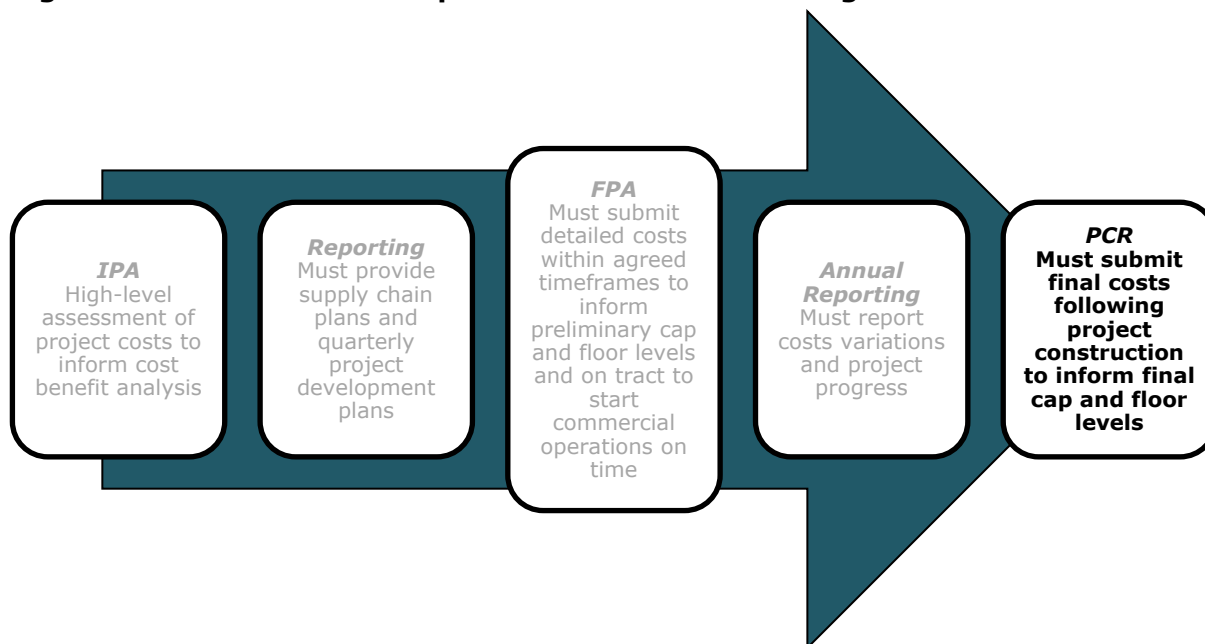
We set out below our key policy positions on the default FPA and PCR processes:

- Only costs considered uncertain (i.e., not backed by signed contracts) at FPA and/or not assessed at FPA are eligible for review at the PCR stage.
- At PCR, we will assess the efficiency of changes in costs that meet eligibility requirements. Any changes in cost that were fixed at FPA must be outside the control of a developer and meet our efficiency and economic principles – we will continue to assess such costs at the PCR and we will allow or disallow these as necessary.
- At PCR, we will consider changes in costs confirmed at FPA that we deem to be eligible and efficient. We acknowledge that certain costs considered at FPA may turn out to be slightly different at project completion (such as those driven by a change in the estimates of required units of construction materials such as cables). The PCR allows these changes to be taken into account by adjusting our provisional cap and floor levels (determined at FPA) for changes in costs we deem to be eligible and efficient.
- At PCR, we will also assess aspects of our cost assessment that were not fixed at previous stages.

We can also confirm that developers would be able to provide additional supporting information prior to Ofgem's PCR decision if material new information arises.

### 3.4 Post Construction Review (PCR)

Figure 9: Overview of our cap and floor assessment stages



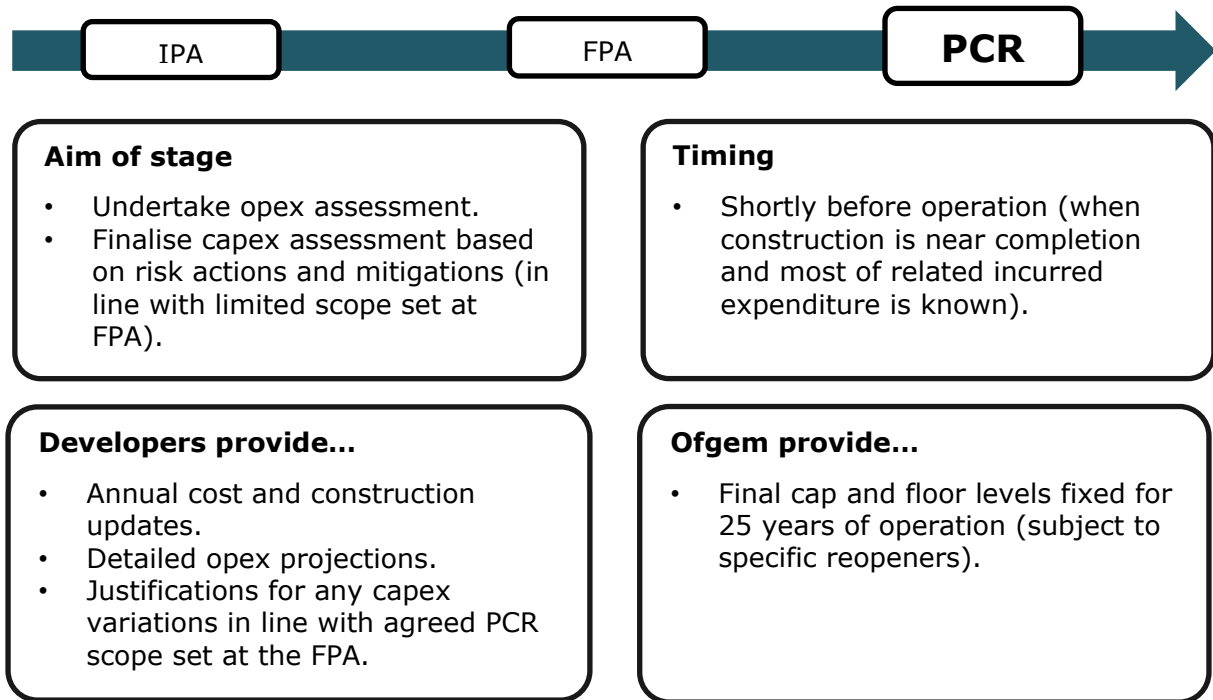
The PCR is the final stage of our cap and floor assessment framework. The primary aim of the PCR is to set the final cap and floor levels for the interconnector.

In order to confirm the cap and floor levels at the PCR stage, we revisit aspects of our cost assessment that were not fixed at the FPA stage and assess the efficiency of certain costs incurred during construction. We conduct a review of the final capital costs (capex) and consider the efficiency of the interconnector’s operational costs (opex). We will also re-examine any information or aspects of the initial submission that have changed significantly.

The FPA determines our initial view of the economic and efficient costs to feed into the cap and floor levels. For many reasons the outturn costs may be different to those assessed at the FPA stage. The PCR will adjust the preliminary cap and floor levels (set at FPA) for costs that we deem to be eligible and efficient.

The PCR updates the preliminary cap and floor levels specified in the project’s interconnector licence and sets the final cap and floor values for the project. These final cap and floor levels then remain fixed for the duration of the interconnector’s cap and floor regime (subject to a discretionary opex reopener).

**Figure 10: Overview of PCR Stage**



### 3.4.1 Eligibility requirement

The timing of the PCR is set out in the special licence conditions. This is generally the earlier of the point at which 85-95% of costs have been committed (excluding IDC) or the project’s Full Commissioning Date. Where the licence allows, the developer may request an earlier or later PCR submission date; such a request must include supporting evidence justifying the request.

### 3.4.2 PCR submission

We expect the PCR submission to be evidence-based and provide a robust case for the assumptions made by licensees to produce the cost estimates.

Developers should engage with us to agree on the best way to submit the relevant information. One way we accept is uploaded to a document platform, where we will be able to view and download all documents.

The submission should be presented in four parts:

- a) Project narrative
- b) Cost assessment template
- c) Risk management strategy and risk register
- d) Supporting documentation

More detail is provided in the table below:



**Table 9: PCR submission sections**

1	<p><b>Project narrative (in Word and PDF Formats)</b></p> <p>The purpose of the narrative is to explain the structure of the submission, summarise the project costs at a high level and provide a general overview of the project. The narrative should include but not be limited to:</p> <ol style="list-style-type: none"> <li>a) A technical summary of the project.</li> <li>b) The legal form of the ownership and operational vehicle.</li> <li>c) A comparison of project costs at the previous assessment and PCR stages (devex, capex and opex). This should include an explanation of any significant cost deviations from the initial cost submission.</li> <li>d) Proposed values for the Post Construction Adjustment (PCA) terms (the Post Construction Adjustment At Cap term (PCAC) and the Post Construction Adjustment At Floor term (PCAF)).</li> <li>e) Summary of the tender process, the selection criteria for bidders and costs of each project element based on tender returns.</li> <li>f) The final capex costs.</li> <li>g) The opex costs estimates.</li> <li>h) A comparison between the project’s estimates of the operational costs and other comparable operational interconnectors. This will enable Ofgem to consider the costs and their drivers in the calculation of final cap and floor levels.</li> <li>i) Information on where project revenues will be received, in which currencies and on what basis.</li> <li>j) Details of any Parent Company Guarantees or Letters of Credit.</li> </ol> <p>Each area should be indexed to the supporting documentation. Where information provided in the initial submission deviates from the information submitted as part of the PCR, it should be clearly flagged along with a justification for this deviation.</p>
2	<p><b>Cost Assessment Template (In Excel Format)</b></p> <p>A completed version of the Ofgem cost assessment template spreadsheet. This should include, as a minimum:</p> <ol style="list-style-type: none"> <li>a) A summary tab of the total project costs, including development, operational and decommissioning expenditure.</li> <li>b) An updated spend profile covering all of the project costs.</li> <li>c) Separate tabs/sheets with a cost disaggregation for each asset type (e.g. subsea cable, converters, operational costs etc.).</li> <li>d) References to any supporting tender/contract terms and quotes, studies, reports or other relevant documents that provide the evidence base for the costs.</li> <li>e) Information on the nature of each cost (i.e. whether the cost is fixed, fixed subject to movement, hedged, variable, etc.).</li> </ol>

	<p>f) The costs should be indexed to support the spreadsheets (or tabs in the same spreadsheet), showing the calculations.</p> <p>g) The incurred costs should be submitted in nominal terms. The opex estimate should be submitted in relevant year real prices.</p> <p>h) The template should state the key assumptions (e.g. forex rates, inflation etc.) used by the developer. Where additional assumptions are being made outside the ones agreed with Ofgem, those should be clearly set out in the cost template in the comments column.</p> <p>i) The supporting source data should be provided to Ofgem in their original native format.</p>
<p>3</p>	<p>a) <b>Eligible Risk related expenditure</b></p> <p>Full details of any eligible risk related expenditure, to be considered in line with the risk eligibility review process set out in appendix 2 of our cost assessment guidance</p>
<p>4</p>	<p><b>Supporting Documentation</b></p> <p>The purpose of this section is to provide detailed information regarding the procurement process and project costs. The information should justify the cost drivers of each project element. Explanations should be provided in areas that might drive costs away from industry standards. This should include, but not be limited to, the following:</p> <p>a) Key additional tender information not provided at FPA, that has been shared publicly during the tender rounds. The information should present how many bids were received, on what terms and prices. In addition, the following tendering information should be provided:</p> <ul style="list-style-type: none"> <li>• An outline of award criteria and standardised and quantified comparison of all the bids. Clear, estimated value ranges have to be presented for 'difficult to quantify' selection criteria. All the assumptions used, especially for valuing risk-related items should be clearly set out.</li> <li>• A summary table of the entire bidding process to show the chronological sequence of events and actions, including dates, actions taken or comments by the contractor and actions taken or comments by the developer. This should also include information where bidders dropped out or were disqualified from the process and rationale for any such actions by the developer.</li> </ul> <p>b) Related party margins, if applicable.</p> <p>c) The backing excel sheets that were used to populate the cost template.</p> <p>d) Cost allocations and the methodology used, if applicable.</p>

### PCR costs submission guidance

Costs should be disaggregated as much as practically possible, in line with the cost template provided by Ofgem.

PCR costs submission from the developer must:

- Include significantly firmer devex and capex than the initial, and RIGs, cost submissions, considering that the majority of the construction work is now complete and the majority of risks are retired or materialised.
- Flag any significant deviations from the initial, and RIGs, cost submissions.
- Flag any additional changes, which are not related to cost, that may affect the initial assessment undertaken by Ofgem, such as the technical specifications of the project.
- Highlight any outstanding capex cost items that might be incurred ahead of operation (if not already operational) and beyond operation.
- Provide detailed submission of opex, repex and decommex if these were not submitted at FPA stage. These costs may be supported by benchmarks from other existing operating interconnectors where appropriate.
- Provide cost information in the price base that is used for the cap and floor levels or as agreed with Ofgem.

We may choose to conduct a forensic analysis of updated costs, or any eligible cost variations, to ensure the traceability and substantiation of the cost submission. This analysis can be used to help establish the final PCR values for the project, including any adjustments to values stated during the RIGs.

The submission should contain:

- a) The final firm development and capital costs of the project
- b) Contracted prices and/or realistic and well-evidenced estimates of the operational and maintenance costs of the project
- c) The replacement costs of the project
- d) The decommissioning plans of the project

Additional miscellaneous requirements are the following:

- All calculations should be submitted in Excel format (not PDF).
- Documents or reports should be submitted in Word or PDF document formats
- The narrative should be submitted in both PDF and Word formats.
- File/folder names should not contain any of the following characters in the title: % ~ & \ # / : \* ? " < > | { }.
- The folder structure of the submission should contain no more than three layers of sub-folders (indexation should be used for navigation purposes).

Once we have determined our view on efficient capex and opex, the cap and floor levels will be calculated by applying these cost allowances to the Ofgem cap and floor financial model (CFFM).

Ofgem will provide a template that will capture the cost information required. Each cost item in the template should have a corresponding indicator showing the level of certainty

in the estimate (input into the first blank column alongside the data, for each cost item). The classifications are as follows:

**Table 10: Cost classifications**

	Classification*	Description	Supporting Documentation
1	Fixed	The cost would not be subject to change and will have supporting documentation matching the amount.	Supporting evidence where costs have already been incurred / Tender documentation
2	Agreed, but re-measurable	The cost has been agreed or estimated but is subject to change in case of <u>unexpected</u> changes to the scope of works.	Tender documentation
3	Agreed, but will be re-measured based on known future information received	The cost has been agreed or estimated but will be subject to change due to clarifying the scope of works or due to additional surveys and assessments being undertaken at the moment.	Tender documentation
4	Estimated	Cost estimated based on assessments, actual surveys, using experience, and examples from other projects.	Spreadsheet with the calculations. Emails/minutes of meetings with specific mention of the variables that have been used in calculating these estimates, the person and company providing the calculations and information. List of surveys done as well as documentation of the surveys.
5	Early estimate	Costs estimated through modelling cost ranges from different projects and experience.	Spreadsheet with the calculations. Emails/minutes of meetings with specific mention of the variables that have been used in calculating these estimates, the person and company providing the calculations and information. List of surveys to be performed to increase the confidence of the cost estimates.

\* Generally, at PCR stage we would expect all capex costs to be firmed up, however we recognise that there can be movements still at this stage.

**PCR submission checklist**

The main aim of the checklist is to assist the developer with the documentation submission. Detailed description of each item is provided in the PCR submission guidance.

**Table 11: PCR submission checklist**

Item No.	Document Type	Content	Completed and Submitted
1	Project narrative	Technical summary	<input type="checkbox"/>
		Legal form of the ownership	<input type="checkbox"/>
		Contracts Structure	<input type="checkbox"/>
		Summary of the tender process	<input type="checkbox"/>
		Final capex and devex update	<input type="checkbox"/>
		Opex estimate	<input type="checkbox"/>
		Opex comparison	<input type="checkbox"/>
		Project Revenues	<input type="checkbox"/>
		Currency of company accounts	<input type="checkbox"/>
		Parent Company Guarantees or Letters of Credit	<input type="checkbox"/>
2	Ofgem cost assessment template spreadsheets	Summary tab of the entire project costs	<input type="checkbox"/>
		Updated yearly cost profile	<input type="checkbox"/>
		Cost disaggregation tabs for each bidder	<input type="checkbox"/>
		Nature of each cost (fixed etc.)	<input type="checkbox"/>
		References Column	<input type="checkbox"/>
3	Eligible risk-related expenditure	Company management details	<input type="checkbox"/>
		Full details of any risk-related expenditure and how it meets our eligibility principles	<input type="checkbox"/>
4	Supporting documentation	The tender summary	<input type="checkbox"/>
		Related Party margins	<input type="checkbox"/>
		Cost allocations and the methodology	<input type="checkbox"/>

### 3.4.3 Project assessment at PCR

The PCR process structure is as follows:

1. **Initial review** - an initial review of the PCR submission by Ofgem to ensure the necessary information has been provided. In accordance with licence conditions, we will confirm completeness within 3 months.
2. **Supplementary questions** - SQs sent by Ofgem to licensee for the licensee to address. The purpose of the SQs process is to capture any clarifications sought by Ofgem on project specific issues and to ensure we have a clear and complete basis for our assessment. This is a key stage in the PCR process.
3. **Full information review** - a full review of information submitted will be carried out by Ofgem to determine efficient cost allowances and this will be used to inform the final cap and floor levels. We may use technical consultants to support our analysis; in such an event, we expect projects to co-operate fully with any consultants in order to help us arrive at our view of efficient costs.
4. **Developer engagement** - meeting(s) between developer and Ofgem (and if applicable, partnering NRA) will be held to discuss the initial view on cost allowances. The objective is to provide visibility to the developer and to discuss any concerns (from either side) prior to the public consultation stage. We will aim to provide a summary of the initial view of any key issues and in due course the cap and floor levels prior to any such meeting(s).
5. **Public consultation process** - our views on efficient cost allowances and resulting provisional cap and floor levels will be subject to public consultation. Ofgem would expect to consult on the PCR for a period of at least 28 days.
6. **PCR decision** - confirm the efficient cost allowances for the project and resulting final cap and floor levels that will apply to the project for the duration of its cap and floor regime (subject to any reopeners).

#### **Cost Assessment at PCR Guidance**

Our 2014 [Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo](#) identifies key areas that will be subject to cost assessment at the PCR stage.

Below we define these areas and how we assess them at PCR.

**The final capex costs** - PCR devex and capex review covers:

- Confirming our final positions on the cost variations that we reviewed during the previous annual RIGs.
- Reviewing and confirming our final positions on the cost variations that may have occurred during the final year of construction.
- Forming a final position regarding the commissioning power and commissioning costs that do not form part of the EPC contracts.
- Establishing a sensible capped cost allowance for some minor construction activities that will be carried out after the PCR stage.
- Deciding if we should allow the inclusion of eligible risk costs within the PCR if these materialise within 3 months after the PCR submission.

**The opex costs** - we will carry out a detailed and comprehensive cost assessment of the operational costs where these were not assessed in detail at FPA stage. The key elements that we will cover in our assessment are the:

- Resource profiling and expenses
- Business services and general administration
- Location and cost of the management offices
- Trading systems
- Trading agreements
- Planned and unplanned maintenance
- Replacement costs (repex)
- Spares
- UK business rates
- Insurance
- Decommissioning plans

The above lists are not exhaustive and we may need to examine other areas of the capex and opex costs during the assessment.

Once we have determined our view on appropriate capex and opex, the cap and floor levels will be calculated by applying these cost allowances to the Cap and Floor Financial Model (CFFM1).

### 3.4.4 PCR timelines

**Figure 11: A typical timeline for the PCR stage**



We intend to start the PCR process:

- a) At the earlier of the following milestones:
  - I. a date on which between 85% and 95% of development and capital expenditure, excluding IDC (and any snagging retention) has been committed to the development and construction of the interconnector; and
  - II. The Full Commissioning Date;
- b) Such date as may be agreed in writing by us.

### **3.4.5 PCR Process**

#### ***Risks***

If some risks materialise shortly after PCR submission, we may allow inclusion of these costs into the PCR up to a certain cut-off point. This cut-off point will be specified as part of the PCR guidance that we will issue to a project to ensure that there is no unreasonable delay to the PCR process.

If the PCR process doesn't conclude within the first year of operation, we may choose to disallow any within-period revenue assessments until the PCR is completed and final cap and floor values are established.



## Section 4: Assessment during operation

### Section summary

This section explains the assessments that we carry out from the start of commercial operation and throughout the regime duration. These assessments focus on the following:

- Comparing interconnector revenues against cap and floor levels
- ICF Methodology development and maintenance
- Cap payments to consumers and floor payments to licensees
- Opex reassessment and decommissioning cost reassessment

### 4.1 Assessing interconnector revenues against cap and floor levels

Each cap and floor interconnector licensee must submit the relevant revenue information through the RIGs process each year. These revenues are then periodically assessed by Ofgem. This revenue assessment can take place every five years (default regime) or every year (where regime variations are approved). Further information on the RIGs process is available in Section 2.4 of this handbook.

The following determinations will then follow (where necessary):

- Adjusting the baseline level of controllable operating expenditure (opex) underpinning the cap and floor levels set at FPA and/or PCR (this adjustment is only available once and cannot occur until at least 10 years after the start of a licensee's cap and floor regime. It then becomes effective for the remainder of the regime);
- Adjusting the baseline level of decommissioning costs underpinning the cap and floor levels set at PCR stage;
- Indexing the values of cap and floor levels set at FPA and the Post Construction Adjustment (PCA) terms we determined at PCR to account for inflation. We convert the real values into nominal values for the purpose of assessing actual revenue against these nominal values. PCA terms represent the difference between:
  - (a) our estimate, assumed in the Preliminary Cap Level, Notional Floor and Actual Floor Levels, of the costs associated with developing, constructing, operating, maintaining and decommissioning of the licensee's Interconnector; and
  - (b) our assessment, at the PCR stage, of the economic and efficient costs associated with developing, constructing, operating, maintaining and decommissioning of the licensee's Interconnector.

- Indexing any subsequent adjustments required to reflect changes to baseline levels of controllable opex and decommissioning costs to account for inflation;
- Adjusting cap and floor levels depending on whether predetermined availability targets are met and associated incentives apply (+/-2% incentive at the cap; binary application of the floor, i.e. either full floor or no floor depending on whether minimum availability is achieved);
- Assessing actual revenue against cap and floor levels (including any adjustments required to reflect changes to baseline controllable opex and decommissioning costs, inflation indexation and availability incentives) on an NPV-neutral basis and at predetermined intervals (every five years, unless more frequent assessments are requested and approved through our variations process);
- Assessing actual non-controllable opex against the baseline level determined at PCR stage (non-controllable opex is excluded from the building blocks used in the CFFM1 to set cap and floor levels and treated separately from the other operational costs by applying a pass-through mechanism).

Finally, we determine whether, for the relevant assessment period, there is a revenue excess (above the cap) or shortfall (below the floor) and, therefore, whether any payments need to be made to or from GB consumers. We also determine the amount of any required payments and pass-through payments required to reconcile different levels of actual and baseline non-controllable opex.

More assessment in addition to the default assessments above may be carried out for interconnectors with regime variations provisions. These further assessments will focus on any additional conditions attached to the regime variations.

## **4.2 ICF Methodology development and maintenance**

The Interconnector Cap And Floor Revenue Adjustment (ICF) term provides for various adjustments (whether upwards or downwards) to the Interconnector Revenue as allowed in the relevant licence condition for the developer: Special Condition 10 (Calculation of adjustments to the licensee's Interconnector Revenue).

The main purpose of the methodology is to account for the time value of money, from the point that a cap/floor payment is determined as due, to the time that it is paid through the Transmission Network Use of System (TNUoS) cycle.

Each licensee is required to establish and maintain a methodology for calculating the value of ICF in a form approved by Ofgem. The detail of the requirement is set out in the same licence condition.

Licensees can start engaging with Ofgem on how to develop the ICF methodology as part of the licence modification process to add special conditions to their licences.

### 4.3 Cap payments to consumers and floor payments to licensees

The cap level represents the maximum amount of annual revenue that the interconnector is allowed to retain; the licensee must transfer revenue above this level to consumers via the process of TNUoS charges.

The floor level represents the minimum amount of annual revenue that the licensee is guaranteed to earn (provided it meets the 80% minimum availability requirement); consumers top-up revenue below this level for the licensee. This is also done via the TNUoS charges process. The interconnector is expected to have in place a process to manage any delays in payments due to the licensee or consumers.

### 4.4 Opex reassessment and decommissioning cost reassessment

#### *Opex reassessment*

The total opex for the regime duration period is determined at the PCR stage. It could also be determined at the FPA stage if the licensee requested this to be done and if sufficient early information is available.

The determined opex value then remains fixed for the regime duration with only one opportunity allowed after a minimum of 10 years for updating the value to reflect efficient opex. The opex reassessment is conducted once and cannot occur until at least 10 years after the start of a licensee's cap and floor regime.

The Opex Reassessment Adjustment process is set out on special licence condition 9 (Process for determining the value of the Opex Reassessment Adjustment terms). It provides for an adjustment (whether upwards or downwards) to the cap and floor levels.

The values are proposed by a licensee and determined by Ofgem in accordance with the process set out in the licence, and account for the difference between our:

- (a) assessment at the PCR stage of the economic costs associated with operating and maintaining a licensee's interconnector; and
- (b) reassessment, at the opex reassessment stage, of the economic and efficient costs associated with operating and maintaining a licensee's interconnector.

This reassessment may be conducted:

- (a) **at a licensee's request** - in which case a licensee must submit a request to Ofgem setting out the proposed adjustment values together with all relevant and up-to-date cost information that Ofgem may require to complete its reassessment; or
- (b) **when Ofgem considers it appropriate** - in which case we will specify the information a licensee is required to provide to allow us to complete our assessment.

Ofgem will review the information submitted by a licensee and send a written notification within three months confirming whether it has:

- (a) received all the information required to allow it to make its determination; or

- (b) not received all the information required and specify what further information is required.

Ofgem shall determine the adjustment value within a period of 12 months from the date we have received all the required information. This date will be confirmed by Ofgem.

Once determined, we will specify the values of the updated opex in a direction. The determined value will take effect from the date<sup>11</sup> stated in the direction, and then remains fixed for the remainder of a licensee's cap and floor regime.

### ***Decommissioning cost reassessment***

The licensee is responsible for decommissioning the interconnector as required by legislation. The decommissioning cost reflected in the cap and floor levels is based on our assessment, at the PCR stage, of the legislative requirements relating to the decommissioning of the interconnector and the economic and efficient costs associated with such requirements.

However, legislative requirements could change before the end of the cap and floor regime and could lead to extra or reduced decommissioning costs, which the developer would not have foreseen.

The licence provides for adjustments to the cap and floor levels (whether upwards or downwards) if a change in legislative requirements results in additional or reduced decommissioning costs agreed by Ofgem – under special condition 7 (Non-Controllable Costs).

Where a licensee considers, and can provide evidence to support, extra decommissioning costs, the licensee may give written notice to Ofgem of such occurrence and must include in that notice its proposed adjustment values. The licence sets out further details of what the notice must contain and the process to be followed.

Where a licensee incurs lower decommissioning costs than the allowance provided for in the cap and floor levels, the licensee is obligated to notify Ofgem of such occurrence and must include in that notice, its proposed adjustment values.

Ofgem will then direct and notify the licensee in writing whether:

- (a) there has been a relevant change in legislative requirements and whether any or all the costs specified in the licensee's notice were caused by the change in legislative requirements; and
- (b) if so, the periods, if any, over which the adjustment values determined by Ofgem should apply.

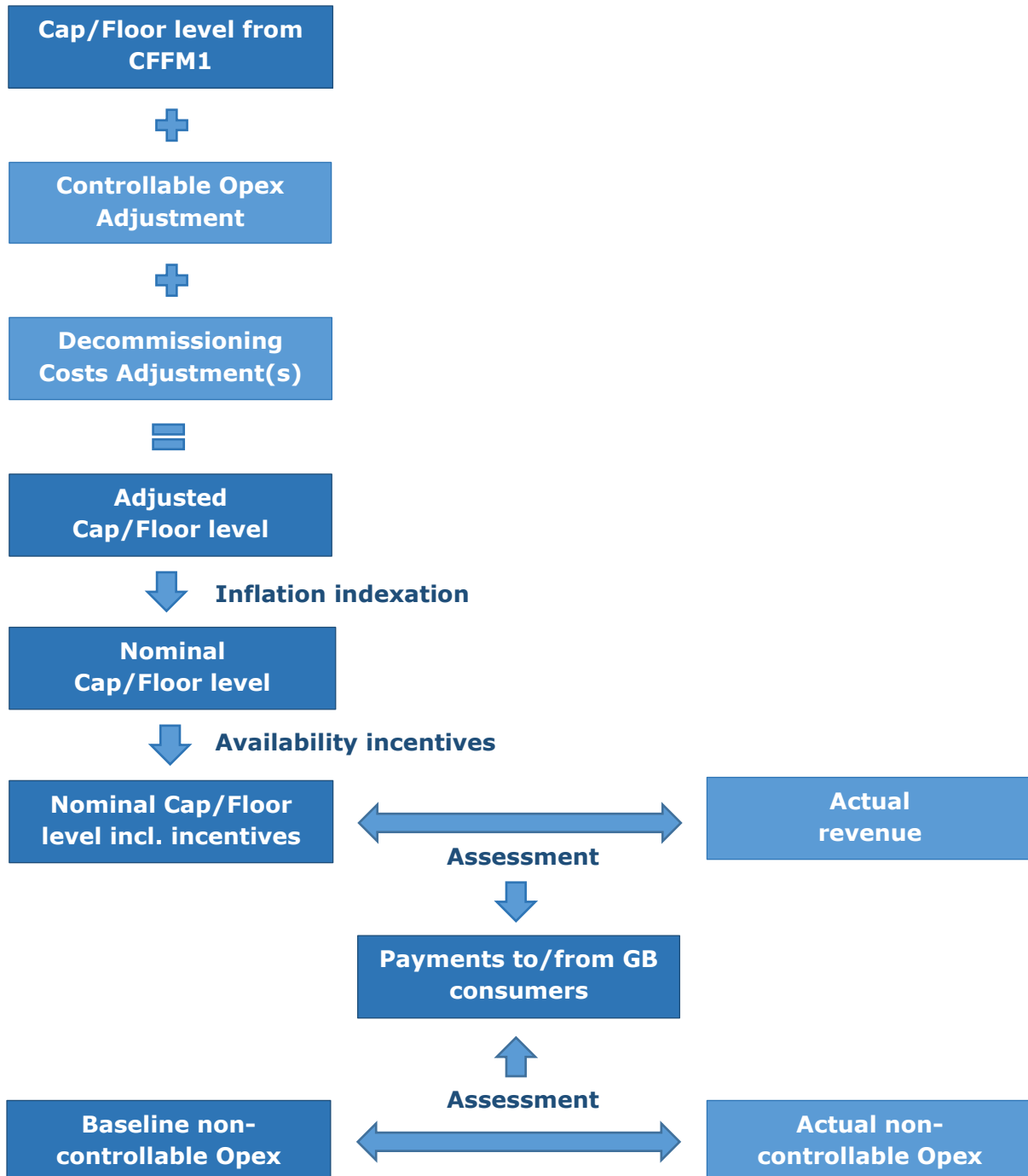
Should there be any further changes in legislative requirements concerning decommissioning after Ofgem's direction, a developer may give further notice to Ofgem as necessary and in accordance with the process described in the licence.

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<sup>11</sup> This effective date is the start of the next assessment year.

Figure 12 below sets out how we adjust cap and floor levels and assess revenues against the levels.

**Figure 12: Adjustments to cap and floor levels to determine payment to or from consumers**



## 4.5 Notifications to Ofgem

There are certain notification obligations on licensees during the operational period. Some of the key ones are provided below with details set out in the relevant interconnector licence conditions:

- Notification obligation in the event of an Interconnector Outage (more detail is set out in Part A of Special Condition 4 (Interconnector Availability Incentive)).
- Notification obligation on any source of Additional Revenue (more detail is set out in Part D of Special Condition 5 (Assessed Revenue)).
- Notification obligation in the event of an Income Adjusting Event (more detail is set out in Part D of Special Condition 7 (Non-Controllable Costs)).
- Notification obligation where the licensee considers, and can provide supporting evidence, that there will be a reduction or increase in costs and/or expenses in relation to the licensee's obligations with respect to decommissioning of the Licensee's Interconnector that have arisen due to a change in legislative requirements (more detail is set out in Part E of Special Condition 7 (Non-Controllable Costs)).
- Notification obligation if the licensee intends to submit a proposed value for the PCA terms (more detail is set out in Special Condition 8 (Process for determining the value of the Post Construction Adjustment terms)).
- Notification obligation to the GB System Operator of the  $ICF_t$  term (more detail is set out in Part C of Special Condition 10 (Calculation of adjustments to the Interconnector Revenue)).
- Notification obligation if the licensee becomes aware of any conflict between the provisions of the licensee's licence and CFFM1 (more detail is set out in Part A of Special Condition 11 (Licensee's Cap and Floor Financial Model Governance)).

## Section 5: Cap and floor regime design

### Section summary

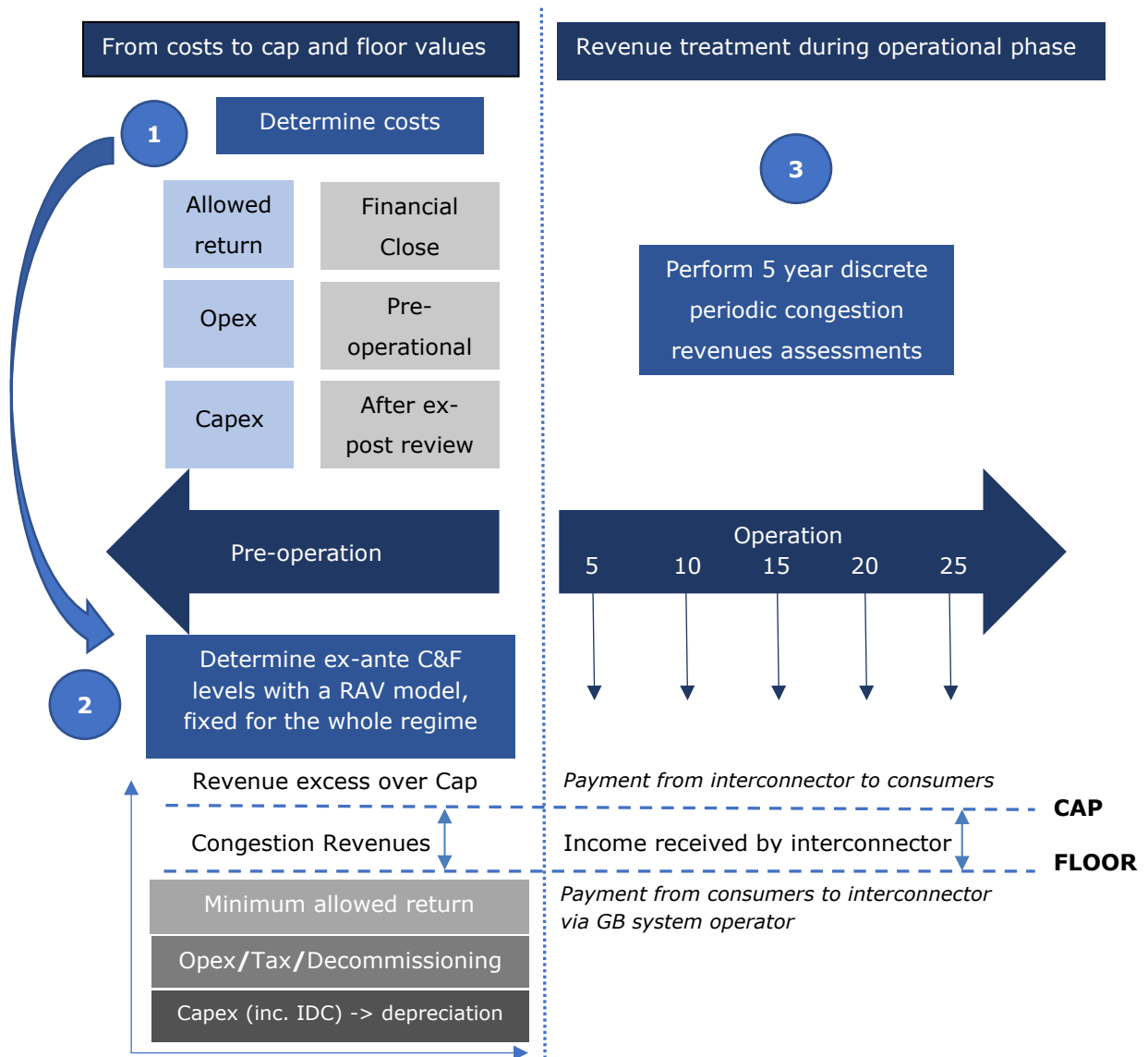
This section explains our:

- Cap and floor regime design
- Cap and Floor Financial Models (CFFM)
- Interest During Construction

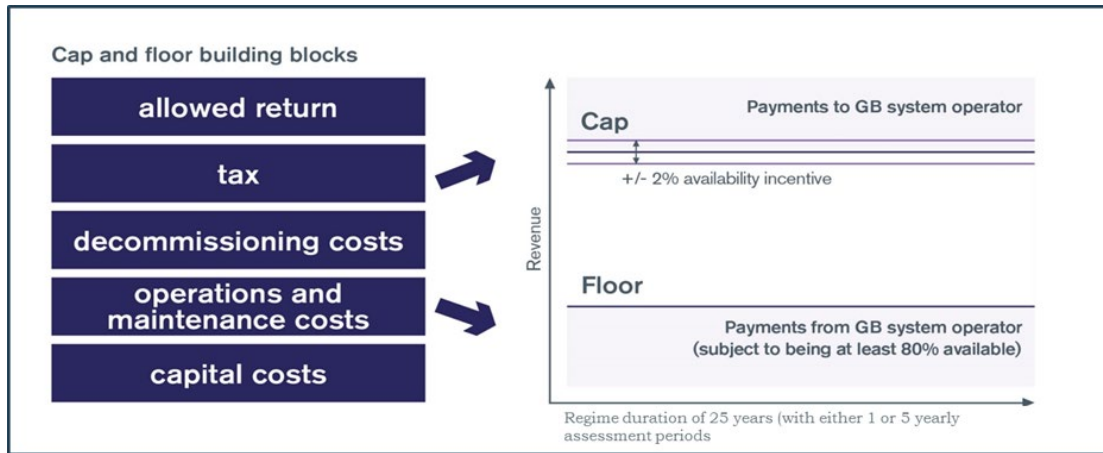
### 5.1 Cap and floor regime design

Project-specific cap and floor levels are set based on efficient project costs using a RAV model. Figure 13 below sets out the high-level regime design:

**Figure 13: High level regime design**

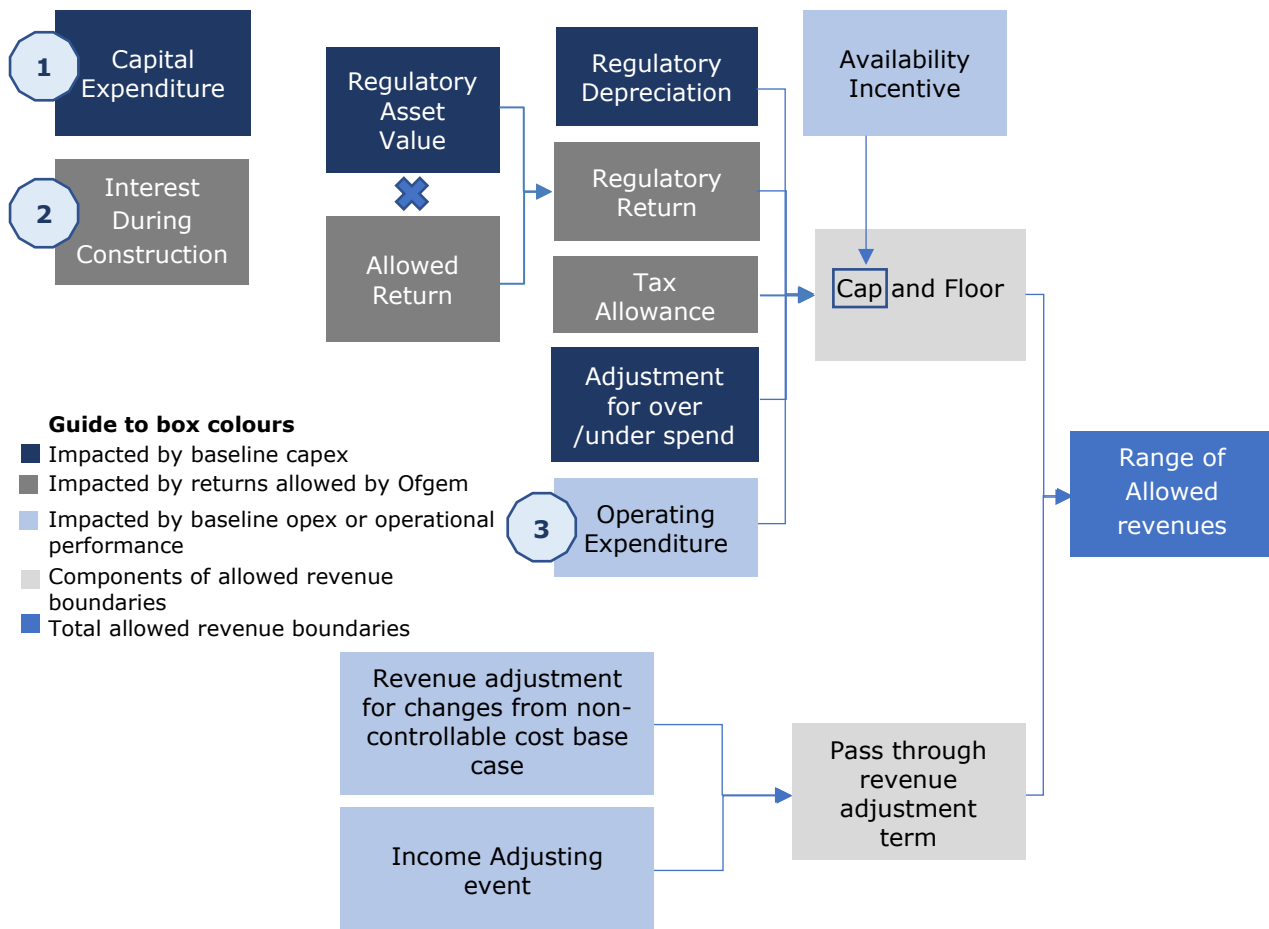


**Figure 14: Components of our RAV based model**



Under our RAV model, the floor allows for the recovery of economic and efficient costs for an interconnector developer. The cap and floor range, as well as the level of the cap and floor, is therefore important in providing the right balance of incentives and an appropriate risk reward trade-off.

**Figure 15: How we set cap and floor levels**





### Key methodology considerations for cap and floor returns

The four main methodology considerations are the following:

- i. *Weighted Average Cost of Capital (WACC) calculations for rate of return at the Cap and cost of debt rate of return at the Floor:* Different approaches to calculating the rate of returns are followed at the cap and the floor. This allows for the different risks associated with the cap and floor to be better reflected in the applicable return rates (further detail is available in our CFFM1 Handbook).
- ii. *Type of approach – mechanistic or deterministic:* A mechanistic approach is followed to provide clarity and certainty to developers and their investors which we consider may be necessary for attracting new developers to enter the market.
- iii. *Timing for locking down the cost of capital parameters:* The rate of returns at the cap and floor are locked in at final investment decision or financial close.
- iv. *Cross jurisdiction issues (blended or separate calculations for each currency):* where the regime covers 100% of the project (i.e. applies in both regulatory jurisdictions), we follow a blended calculation approach by applying a 50:50 weight to the cost of capitals calculated between the two jurisdictions. Otherwise, UK parameters are used.

**Table 12: Floor return**

Aspect	Design
Index	20-day simple trailing average
Index composition	GBP Non-Financials of 10+ years to maturity; credit ratings of a blend of A/BBB (default) or BBB (regime variation)
Index source	iBoxx
Index deflator	10-year breakeven data published by the Bank of England
Return locked down	At final investment decision or financial close

**Table 13: Cap return**

Aspect	Design
Calculation technique	<p>Capital Asset Pricing Model (CAPM): An allowance for a return at the Cap is determined as the cost of equity, calculated in accordance with the capital asset pricing model (CAPM).</p> <p>The following parameters are fixed across all projects: asset beta 0.625, notional gearing 50%, equity beta 1.25, GB risk free rate 1.6%, Retail Price Index (RPI) adjustment 0.4%</p>

	TMR is lifted from latest DMS/Credit Suisse equity returns yearbook available at time of FID and varies across projects. Equity IRR is not capped.
Risk free rate	Long-term real risk-free rate (this is fixed at 1.6% for W1 and W2 projects)
Equity beta	Fixed at 1.25 for W1 and W2 projects based on fixed asset beta of 0.625 and notional gearing of 50%
Equity risk premium	Calculated as: <ul style="list-style-type: none"> <li>- TMR equal to latest available value of arithmetic mean UK real equity returns from Dimson, Marsh and Staunton (DMS), which is published in the Credit Suisse Global Investment Returns Sourcebook, for the data series starting in 1900; minus</li> <li>- Fixed RPI adjustment of 0.4%; minus</li> <li>- Fixed risk-free rate of 1.6%.</li> </ul>
Return locked down	At final investment decision or financial close

**Table 14: Cost of capital during operation**

Aspect	Design
Calculation technique	<b>Default regime:</b> 50% notional gearing is applied to Floor rate of return (cost of debt) and Cap rate of return (cost of equity) to determine WACC during operations; <b>Regime variation:</b> the Bank of England Sterling Overnight Index Average (SONIA) applicable for the period under consideration plus a margin determined at financial close (based on a competitive debt raising process overseen by Ofgem).
Gearing	50% notional gearing

**Table 15: Additional finance cost allowance**

Aspect	Design
Debt transaction cost	Default: notional 2.5% <sup>12</sup> Regime variation: Actual debt transaction cost
Equity transaction cost	Default: notional 5% <sup>11</sup> Regime variation: Actual equity transaction cost

**Table 16: High level regime design**

Aspect	Design
Regime length	25 years
Regime start date	<p>Window 1: Earlier of 1st January 2021 or any date specified in the licence for the developer</p> <p>Window 2: 1st January 2024 or any date specified in the licence for the developer.</p> <p>If a force majeure prevents the interconnector from becoming operational on the agreed operation start date, then Ofgem will consider delaying the regime start date accordingly. If the delay is not caused by a force majeure event the regime will only run for 25 years minus the delay period.</p>
Cap and Floor levels	<p>Cap and floor allowances are set on an annual basis as the sum of the following building blocks: costs during operations (estimated ex-ante at FPA and then PCR); RAV depreciation and return on RAV (with RAV estimated ex-ante at FPA and then confirmed ex-post at PCR); and tax.</p> <p>These annual allowances are then annuitised to set cap and floor levels that are constant in real terms over the regime</p> <p>Cap and floor levels remain mostly fixed for regime length, except for annual inflation indexation, availability incentives at the cap, and any required one-off adjustments to operating costs (only one allowed during the regime length) and decommissioning costs (multiple allowed).</p>

<sup>12</sup> Debt and equity transaction cost allowances (£m) are calculated by applying the relevant transaction cost rates (2.5% and 5.0% respectively) to the RAV through the calculations set out in the 'Finance' sheet of the CFFM1 financial model and associated handbook.

<p>Setting costs</p>	<p>Capex – ex-post capex review Opex – set ex-ante, i.e. before operation</p> <ul style="list-style-type: none"> <li>• Capital costs include development expenditure, construction capex, spares, replacement (life-cycle) expenditure, IDC and financial transaction costs.</li> <li>• These items are the building blocks of the RAV which reflects the undepreciated asset value of the interconnector.</li> <li>• Allowances for capital and operating costs are determined through Ofgem’s cost assessment process similar to the OFTO regime.</li> </ul>
<p>Assessment period (assessing whether IC revenues are above/below cap/floor)</p>	<p>5 years, discrete periodic basis (default regime) or 1 year (regime variation).</p> <ul style="list-style-type: none"> <li>• Each 5-year assessment period is considered in isolation, with no carry overs between assessment periods.</li> <li>• There is a provision for developers to request a within-period adjustment (covering whole years) on the grounds of financeability; or pre-empting a material end of period adjustment. Any within-period adjustment is subject to a true-up on a NPV neutral basis at end of the assessment period.</li> </ul>
<p>Mechanism</p>	<p>Cap and Floor returns earned within boundaries; revenues above cap returned to consumers, revenues below floor require payment from consumers (via Transmission Use of System Charges)</p>
<p>Proving period</p>	<p>A 60-day proving period to demonstrate that the interconnector is available for the use of conveyance of electricity at 100% rated capacity. Detail is set out in special condition 2 (Cap Level and Floor Level) of the licence.</p>
<p>Availability incentives</p>	<p>The Cap level (in £m) is adjusted annually by up to +/- 2% if interconnector availability exceeds or falls short of the project’s target availability level.</p> <p>This means that availability above (or below) the target level will result in a one-for-one percentage increase (or decrease) in the cap level, up to +/- 2%. This target availability level is different from and higher than the minimum availability level fixed at 80%.</p>

	Developers will lose automatic eligibility for floor payments for each individual year if availability is below 80% in that year unless this was caused by an 'exceptional event' ( i.e. force majeure). A variation to the regime can reinstate the floor via temporary loans provided by consumers which cannot exceed 400% of the applicable floor level. Special condition 4 (Interconnector Availability Incentive) of the licence issued to the developer provides more detail.
Exceptional Event	Exceptional Event(s) that may impact interconnector availability are recognised under certain conditions as set out in special condition 4 (Interconnector Availability Incentive) of the licence issued to the developer.
Income Adjusting Event (IAE)	Assessed Revenue for a developer maybe adjusted (upwards or downwards) as a consequence of an Income Adjusting Event. The process for determination of IAE is set out in special condition 7 (Non-Controllable Costs) of the licence issued to a developer.

### **Tax Allowance**

In the setting of the cap and floor levels, we compute a separate tax allowance at the floor and another at the cap. This reflects the different levels of profits associated with revenue being at the cap and floor, respectively. Since we provide a separate tax allowance at both the floor and the cap, we set the cap and floor returns on a vanilla basis.

Tax arrangements are reflected in the following way:

- **Tax allowance at the floor level** is estimated as the annual tax allowances at the floor and then converted into an annuity to be added to the revenue floor allowance annuity.
- **Tax allowance at the cap level** is estimated as the annual tax allowances at the cap and then converted into an annuity to be added to the revenue cap allowance annuity.

The cap and the floor levels are built from building blocks of capital costs, operations and maintenance costs, decommissioning costs, tax allowances and allowed return. The cost related building blocks (capital costs, operations, maintenance and decommissioning) are confirmed at FPA and/or PCR stages, whereas the financial costs (allowed return and approach to tax allowances) are locked in at FID. There is no defined tax-trigger mechanism for tax changes (i.e. the approach to tax is set for the length of the regime).

The final allowance (in £) reflects the final regulatory asset value (RAV) at the PCR stage. For the avoidance of doubt, once tax rate is locked in at FID, there will be no re-openers for changes to tax rate or treatment.

Corporation tax rate used for the purposes of calculating cap and floor tax allowances is set at FID based on the HMT tax guidance. For example, if the current tax rate at FID is 20% but HMT have published that tax will rise to 22% in the future, the relevant tax rate

for calculating the tax allowance will be 22%. If the proposed tax increase is reversed at the time of calculating the final allowance to reflect the final regulatory asset value (RAV) at the PCR stage, the relevant tax rate will be 20%.

More detail on tax calculation is set out in the relevant section of any of our project specific [Cap and Floor Financial Model 1 Handbook \(CFFMH1\)](#). Please note our CFFM1 is project specific and subject to change, the most up-to-date version is available on our webpage.

## 5.2 Cap and Floor Financial Models (CFFM)

We set the cap and floor levels to provide a stable revenue stream that developers can rely upon to recover their costs, including debt servicing, and to meet the financing covenants required by their lenders. These covenants are competitively determined with Ofgem having oversight over the process.

The methodology for setting the cap and floor levels takes into account the following key considerations:

- **Costs estimation** – determining the efficient costs (investment capital) of delivering and operating an interconnector project before (ex-ante) and after (ex-post) these costs are incurred.
- **RAV estimation** – converting the investment capital into a regulated asset value (RAV).
- **Rate of return estimation** – determining an allowed rate of return on the capital invested (both debt and equity).
- **Incentives** – incentivising developers to deliver high quality projects on time and to make the interconnector available to flow electricity as much as possible.
- **Invested capital and allowed return recovery** – determining in what form developers and investors can recover their investment and earn a return on it.
- **Timing** – determining final decision points for all estimates and fixing the cap and floor levels to provide investors with clarity and certainty.

We adjust cap and floor levels during operations to consider any allowed pass-through costs and to compare actual revenue against adjusted cap and floor levels, to determine whether any payments are due to or from GB consumers.

The methodology for adjusting the cap and floor levels takes into account the following key considerations:

- **Changes in controllable opex** – determining at any point during the last 15 years of the 25-year operational period (but not during the first 10 years), a one-time adjustment to the baseline level of controllable opex, to rectify a misalignment between revised cost forecasts for the remainder of the period and original baseline levels assumed at PCR stage.
- **Changes in decommissioning costs** – determining at any point during the 25-year operational period (and, if required, more than once), an adjustment to the baseline level of decommissioning costs to rectify a misalignment between revised cost forecasts for the remainder of the period and original baseline levels assumed at PCR stage.

- **Inflation** – updating the cap and floor levels to reflect outturn inflation since the baseline was set and converting values from real to nominal to allow assessment of interconnector revenues against these levels in the relevant year under consideration.
- **Availability** – determining whether the floor level is available to a licensee (if developers have met the minimum availability target) and implementing a plus or minus 2% adjustment to the cap level depending on how a licensee’s interconnector performs relative to the target availability level.

### ***Model description and governance***

The Cap and Floor Financial Models (CFFMs) are Microsoft excel based models that Ofgem uses to transform cost and other inputs into the cap and floor levels. These levels represent boundaries to the revenue streams that are available to developers and investors to recover their investment and earn a return on it.

There are two CFFMs, model 1 (CFFM1) and model 2 (CFFM2). Where the cap and floor regime is the applicable regulatory regime on both the GB side and the connecting country’s side (as in the case of the Nemo Link project) the CFFM1 and CFFM2 are dual currency (€/£) models. Where a split regulatory framework is the case (meaning the cap and floor regime applies only to the GB side of the interconnector), the CFFM1 and CFFM2 are single currency (£) models.

The default models follow a notional cost of capital approach – using notional financial inputs to generate cap and floor levels and actual revenues earned by an interconnector are then compared against these notional levels. The modified models follow an actual cost of debt approach – using notional financial inputs to generate the cap but financial inputs determined via developer led debt funding competition to generate the floor level. Further detail is available in Appendix 2 to our February 2021 consultation notice.

Ofgem developed CFFM1 and CFFM2 in consultation with developers and other parties and maintains the models throughout the regime duration.

We update the CFFM1 for each project at the FPA and PCR stages or at the licensee’s licence modification stage and use it to determine the cap and floor levels applicable to the licensee at FPA and then any adjustments to these levels required at PCR. The CFFM2 is used for our assessment of revenues and any allowed adjustments to cap and floor levels during the operational period.

Please refer to the associated documents table for the link to the latest versions of our CFFM1 and CFFM2 and the accompanying handbooks.

### ***Key CFFM1 and CFFM2 inputs and outputs***

The key model inputs for CFFM1 are the following:

- Cap return rate
- Floor return rate - both notional and actual (as applicable)
- IDC rate
- Costs during construction (development expenditure – devex, capital expenditure – capex, and cost of spares)
- Costs during operations (replacement expenditure – repex, decommissioning baseline, controllable opex and non-controllable opex baseline)

- Pre-operational gearing
- Operational gearing
- Equity and debt transaction cost allowances
- Regime start date and other relevant dates

The 'Inputs' sheet of the CFFM1 contains all the inputs used throughout the model to calculate preliminary cap and floor levels (at FPA) and final cap and floor levels (at PCR), i.e. revenue cap, notional floor and actual floor levels for a specific project.

The key model outputs are the following:

- Cap level, preliminary at FPA and final at PCR
- Floor level - both notional and actual (as applicable), at FPA and PCR
- Cap adjustment value, at PCR
- Floor adjustment value - both notional and actual (as applicable), at PCR

The 'Cap Floor Levels' sheet of the CFFM1 contains all the key outputs generated from the model that will apply for a specific project.

The key model inputs for the CFFM2 are the following:

- Cap level
- Floor level - both notional and actual (as applicable)
- Baseline costs during operations
- Regime start date and other relevant dates
- Cap level adjustments (various)
- Floor level adjustments (various) – to both notional and actual floor (as applicable)
- Operational discount rate
- Revenue items
- Inflation index

The key model outputs are the following:

- Adjusted Cap level
- Adjusted Floor level - both notional and actual (as applicable)
- Amounts due to or from GB consumers

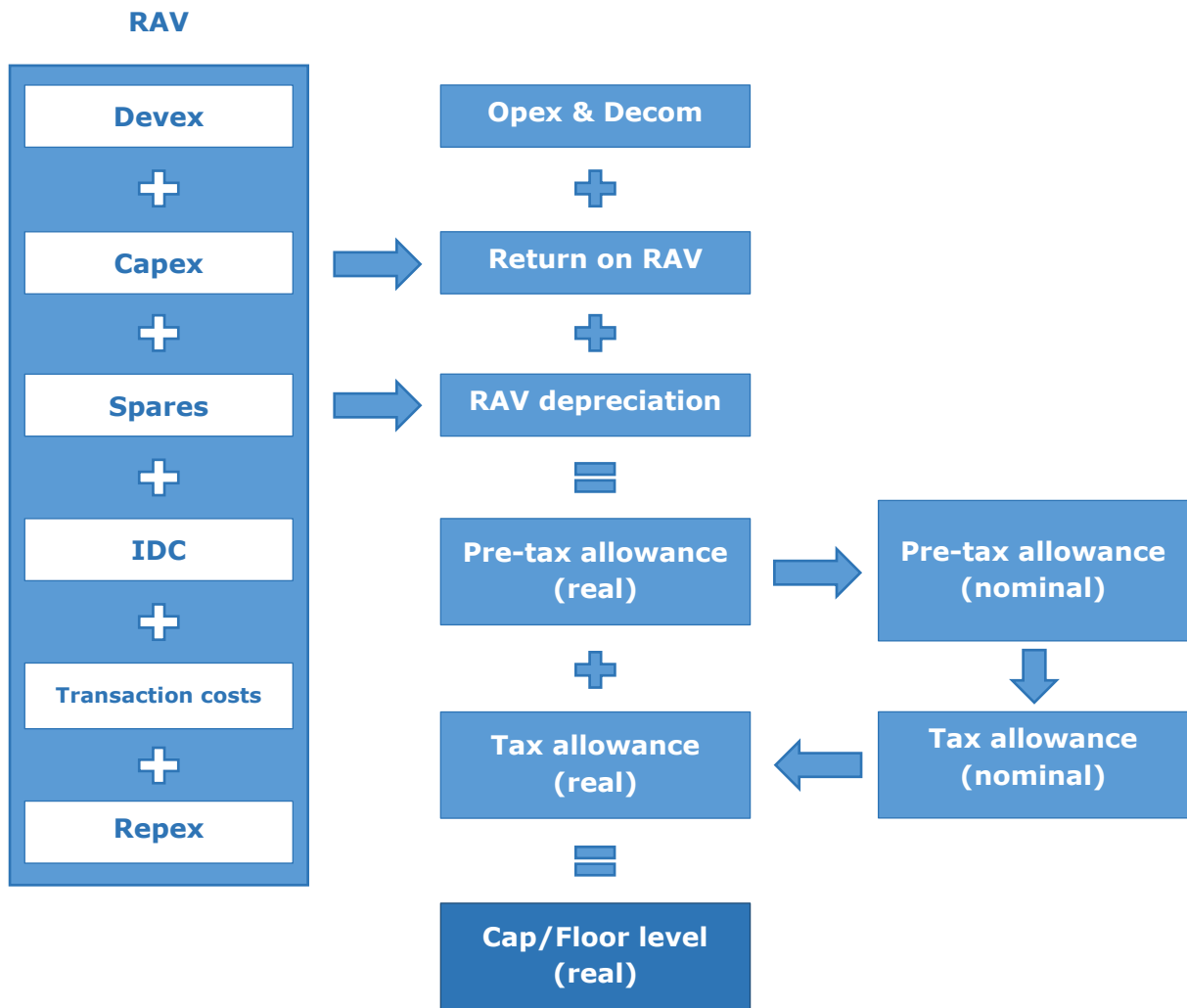
### ***How we calculate the Cap and Floor Levels***

The cap and floor levels are built from building blocks of capital costs, operating and maintenance costs, decommissioning costs, tax and allowed return. The cap and floor levels are then profiled so that they are flat in real terms over the length of the regime.

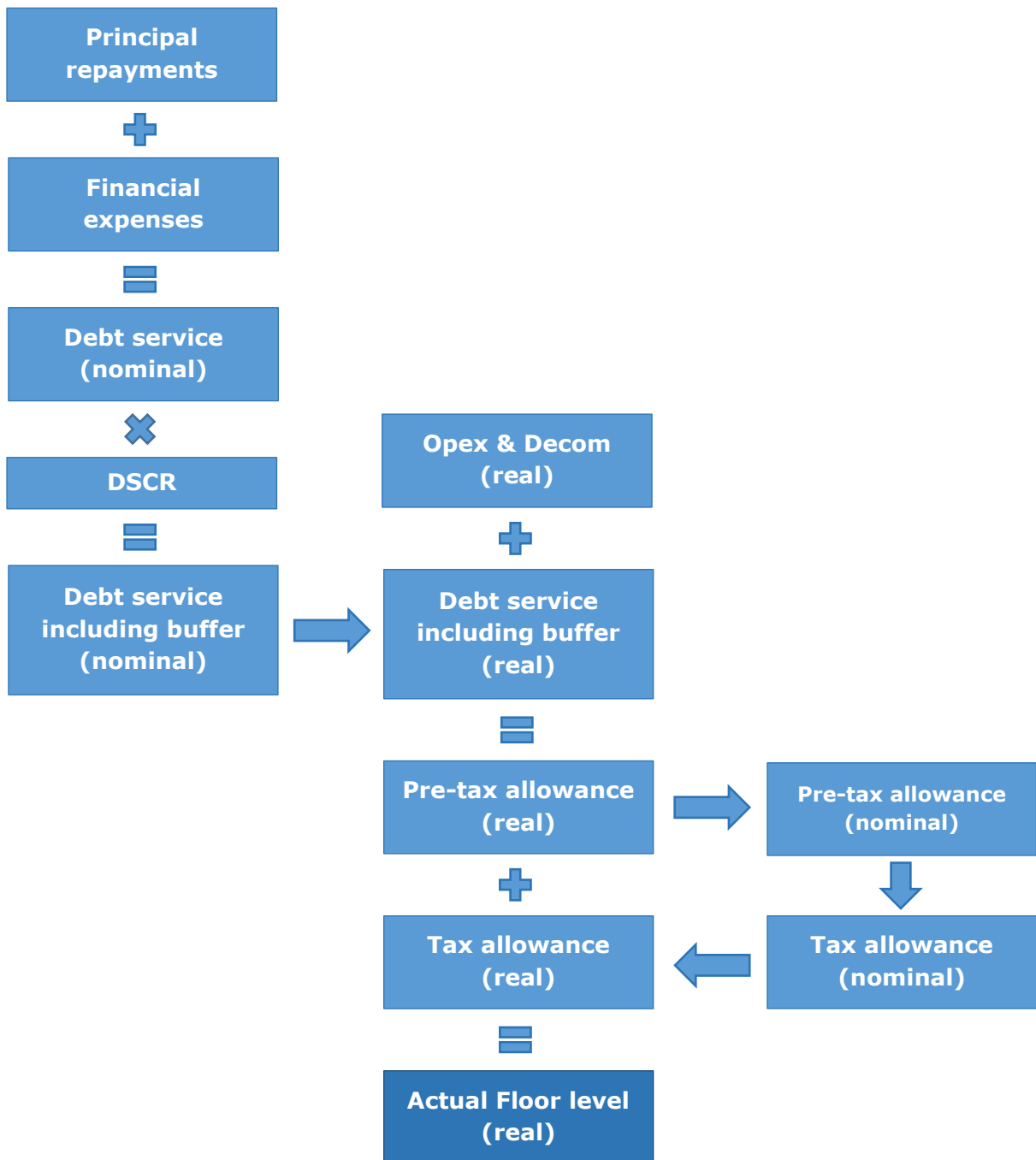
Figure 16 below sets out how the costs elements interact to determine revenue cap and floor levels following the default regime approach. Where we have approved a regime variation for a project we may follow a different approach as set out in Figure 17.

### **Figure 16: Building blocks of the notional cap and floor levels under default regime (RPI-real)**





**Figure 17: Building blocks of the actual floor level following a regime variation approach (RPI-real)<sup>13</sup>**



<sup>13</sup> This approach may vary by project.

## 5.3 Interest During Construction (IDC)

We provide an IDC allowance to licensees to cover the cost of financing the development and construction of transmission assets under our regulatory regimes.

During the pre-operational period, there is no potential to receive income through the regime, so any IDC generated pre-operation is capitalised into the RAV. It is only once operation starts that this can be recovered through RAV depreciation and return on RAV.

Under the default regime, the allowance is in the form of an explicit notional financing rate with a specific methodology developed to determine how we set the rate.

Any future revisions to the methodology used to set the IDC rate will not affect W1 projects and W2 projects that have already made a final investment decision (FID) in the financial years before the financial year in which the revision is published.

### 5.3.1 IDC methodology for Nemo Link and Window 1 projects

The IDC rate is the rate of return that we allow developers of offshore transmission assets and interconnectors to earn during the construction phase. We estimate it as a cost incurred in the development and construction phase which is capitalised and feeds into the cap and floor levels. We calculate IDC on the RAV balance at the end of each pre-operational year and add it to the starting RAV for the succeeding year (until the start of operations).

The IDC rate (%) is determined based on the FID date for each Window 1 project and confirmed at the FPA stage of the project. The final allowance (£) is reflected in the final RAV at the PCR stage (an initial value will also be specified at the FPA stage).

#### ***How we set IDC parameters for Nemo Link and Window 1 projects***

We calculate the rate as a weighted average of cost of debt and cost of equity allowances, with weights based on a notional gearing level, plus relevant risk premia:

$$IDC\ rate = WACC + Development\ risk\ premium + Construction\ risk\ premium$$

Where:

$$WACC = Cost\ of\ debt * Gearing + Cost\ of\ Equity * (1 - Gearing)$$

**Cost of debt:** we estimate the cost of debt as yield only without transaction costs. The cap and floor regime accounts for transaction costs separately which we explain in detail under the 'Setting the cap and floor level' section. The cost of debt component of the IDC rate is equal to the floor return rate, which is determined as explained in Section 5.2 'Cap and Floor regime design'.

**Gearing:** we use a weighted average of the actual gearing of four comparable firms (Centrica Plc, E.ON AG, RWE AG and SSE Plc), calculated using data from Bloomberg. Gearing is calculated as:

$$Gearing = \frac{Net\ debt}{Equity}$$

Where:

$$\text{Net debt} = \text{Long term debt} + \text{Short term debt} - \text{Cash}$$

$$\text{Equity} = \text{Market capitalisation} + \text{Preferred equity}$$

**Cost of equity:** we calculate the cost of equity using the Capital Asset Pricing Model (CAPM):

$$\text{Cost of Equity} = \text{Risk free rate} + \text{Equity beta} * \text{Equity risk premium}$$

**Risk free rate:** The risk-free rate is calculated as the ten-year average yield on UK ten-year real zero-coupon gilts (IUMAMRZC) at the FID date. This is similar to the way the risk-free rate is estimated in onshore network price controls.

**Equity beta:** This is based on the same four comparators used to estimate notional gearing. We calculate equity beta as the weighted average (weighted by market capitalisation) of the raw equity betas of the four comparators from Bloomberg.

**Equity risk premium:** This is calculated as total market return (TMR) minus an RPI adjustment (accounting for the RPI formula effect) minus risk free rate. TMR and RPI adjustment are the same as those used to calculate the cap return rate, as explained in Section 5.2 'Cap and Floor regime design'; the risk free rate is estimated as explained above.

### 5.3.2 IDC methodology for Window 2 projects

In July 2018, we introduced a new methodology for setting IDC rates to apply for Window 2 projects. The detail of this new methodology is set out in our IDC decisions of 30 July 2018 and 30 May 2019.

Our decision changed the timing of setting interconnector IDC from individual assessments at the date of FID for each project (Window 1) to an annual update applicable to all projects reaching FID in that financial year (Window 2). Once set, the IDC rate for Window 1 and Window 2 projects remain fixed until construction of the project is complete.

We expect that the methodology introduced for W2 projects will apply to interconnectors considered under any future cap and floor regime application windows.

#### ***How we set IDC parameters for Window 2 projects***

This section summarises the methodology introduced in July 2018 for each parameter of the IDC rates, and the steps involved in setting the value of the parameters for 2019-20. It also sets out clearly where we have refined the process in 2019 to make it more robust and transparent.

**Cost of debt - Yield:** The yield component of the cost of debt is set based on the spot and 1-year average yields on three iBoxx GBP bond indices (sourced from HIS Markit):

- A-rated Non-Financial Corporate (primary benchmark);
- BBB-rated Non-Financial Corporate (primary benchmark); and
- Infrastructure (secondary benchmark used as a cross-check).

The tenor of the indices is selected to match the approximate average length of the construction period for interconnectors - tenor of 3-5 years, reflecting average construction period of 4 years.

**Cost of debt – Transaction costs:** There is no transaction cost component of the cost of debt used to set the IDC rate for interconnectors, as transaction cost allowances for both debt and equity are calculated separately and capitalised into the RAV, as explained in Section 5.1 'Cap and Floor regime design'.

**Cost of equity – Risk-free rate:** The risk-free rate is set based on spot, 20-day average and 1-year average yields on the 5-year UK nominal zero-coupon Gilt.

**Cost of equity – Total Market Return (TMR):** To inform our policy decisions for the RIIO-2 price controls for regulated networks, we undertook a thorough review of TMR and published our proposed methodology and range in May 2019, as part of the Finance Annex to the RIIO-2 Sector Specific Methodology.

This range was determined using a wide pool of evidence, including both historical averages and forward-looking measures, and following an extensive consultation exercise. The findings of this review were not available to us when we set the IDC rates for 2018-19.

Given the complexity in estimating TMR, and the significant work undertaken for RIIO-2, we have concluded that it is appropriate to align our approaches, and use the same range to set the allowed cost of capital for regulated networks and the IDC rates applying to new assets.

**Cost of equity – Asset beta:** The baseline asset beta range is derived using two sets of comparators:

- Low end of the range (lower risk): Scottish Transmission Operators (TOs) during RIIO-1 (due to these TOs having a particularly capital-intensive investment programme in RIIO-1); and
- High end of the range (higher risk): eleven Construction and Engineering (C&E) firms trading with sufficient liquidity (bid-ask spread of less than 2%) on the London Stock Exchange.

The low end of the baseline asset beta range is set just above the asset beta of Scottish TOs during RIIO-1.

For C&E firms, raw equity betas are derived from market data and de-gearred into asset betas based on the firms' net debt position and market capitalisation (with all relevant financial data downloaded from Bloomberg): the average of these asset betas across the eleven firms and over the previous 5 years informs the high end of the baseline asset beta range.

Uplifts are then applied to the baseline range to reflect additional riskiness relative to the baseline scenario, for example due to additional exposure to the marine environment, 0.05 uplift is applied at the low end and 0.10 uplift at the high end.

As explained at the start of this section, asset betas are then re-gearred into equity betas using the notional gearing level.

**Gearing:** The notional gearing level is derived looking at two sets of comparators:

- Lower gearing: the same eleven C&E firms used to estimate the top end of the asset beta range; and
- Higher gearing: a sample of comparable infrastructure projects delivered within a regulated environment.

C&E firms are considered to be more exposed to risk (and therefore unable to take on high levels of debt) due to the lack of regulatory protection; this protection is available to the regulated infrastructure projects, which therefore are considered to carry less risk and be able to take on higher levels of debt.

The notional gearing is set broadly in line with the average between the gearing levels of these two sets of comparators.

**Inflation:** To convert ranges from nominal to RPI-real, we use an inflation assumption for the Retail Price Index (RPI)

The RPI assumption is set based on spot and 1-year average 5-year breakeven inflation (which is the inflation assumption implied in the difference between nominal and real 5-year UK zero-coupon Gilt yields).

## Appendices

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1	Abbreviations

## Appendix 1: Abbreviations

Abbreviation	Term
Capex	Capital Expenditure
C&E	Construction and Engineering
C&F	Cap and Floor
CFFM	Cap and Floor Financial Model
Decommex	Decommissioning expenditure
Devex	Development Expenditure
ESO	Electricity System Operator
FID	Final Investment Decision
FPA	Final Project Assessment
GB	Great Britain
GW	Giga Watt
ICFt	The value of the Interconnector Cap And Floor Revenue Adjustment term for relevant year t
IDC	Interest During Construction
IPA	Initial Project Assessment
ITPR	Integrated Transmission Planning and Regulation
MW	Mega Watt
NRA	National Regulation Authority
Opex	Operational Expenditure
PCR	Post Construction Review
RAV	Regulatory Asset Value
RIGs	Regulation, Instructions and Guidance
RPI	Retail Price Index
SQ	Supplementary Questions
TNUoS	Transmission Network Use of System
TSO	Transmission System Operator